INTERNATIONAL GRADUATE COLLOQUIUM

i-SPEAK 2025 ①

SPORTS AND PHYSICAL EXERCISE ASSEMBLY OF KNOWLEDGE SHARING

COLLOQUIUM PROCEEDINGS

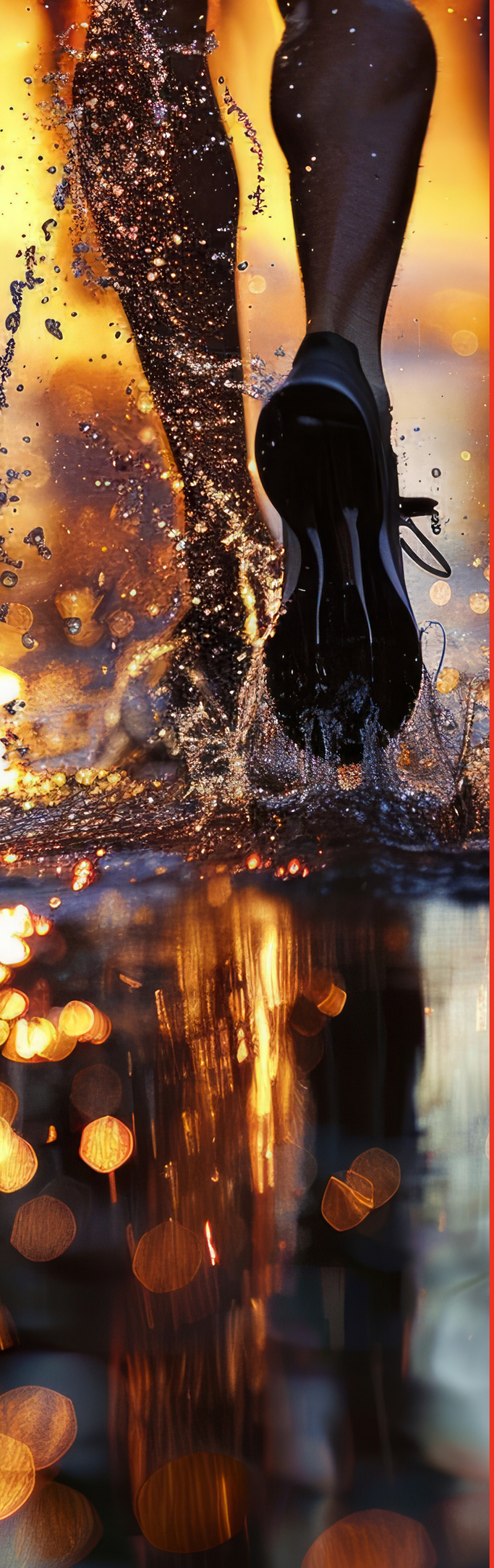
EXTENDED ABSTRACT

EDITOR | ADAM LINOBY

Proceedings of the International Graduate Colloquium:
Sports and Physical Exercise Assembly of Knowledge Sharing,
i-SPEAK 2025, Series 1, 5th–6th February, Malaysia.

e-ISBN 978-629-99383-7-8 (online)
DOI 10.5281/zenodo.14904857
Published 22nd February 2025

EDITOR-IN-CHIEF: ADAM LINOBY
Faculty of Sports Science and Recreation, Universiti Teknologi MARA Seremban, Negeri Sembilan, Malaysia



INTERNATIONAL GRADUATE COLLOQUIUM

i-SPEAK 2025

COLLOQUIUM PROCEEDING | SERIES 1

ORGANIZING COMMITTEE

CHAIR
Wahidah Tumijan

CO-CHAIR
EDITOR-IN-CHIEF
Adam Linoby

SECRETARIAT
Radzliyana Radzuwan (Head)
Raja Nurul Jannat
Mohamad Firdaus Ahmad
Muhammad Zulqarnain

MULTIMEDIA
Razif Sazali (Head)
Maisarah Mohd Saleh

TECHNICAL
Iqbal Khan Norhamazi (Head)
Azman Ahmad Tajri
Mardiana Mazaulan
Muhammad Asraf

PUBLICATION
Muhamad Noor (Head)
Rozita Abdul Latif
Mohd Shariman Shafie
Noor Azila Azreen
Aida Roha Abdul Rasid
Yusandra Md Yusoff
Muhammad Wafi A. Rahman
Hasmiza Abdul Majeed
Nur Hani Syazwani Bakri
Patricia Pawa Pitil
Sharifah Maimunah

PROMOTION
Nurul Ain Abu Kasim (Head)
Ummi Kalthum Mohd Mokhtar
Siti Aida Lamat
Mohammad Adzly Rajli

CONTRIBUTORS

Adam Irman
Ahmad Amirul
Ahmad Hafizuddin
Ahmad Haziq
Aimi Maisarah
Ameer Hamzah
Amielia Natasya
Amirah Syahirah
Anis Afeeqa
Aqmar Farhana
Arif Iskandar
Auni Zafirah
Hafiz Izzuddin
Intan Shahira
Izzatul Husna
Luqmanul Hazim
Mohamad Fardeen
Mohamad Faris
Mohamad Hafiz
Mohamad Haris
Mohamad Mukri
Mohammad Amirul
Mohammad Nur
Mohd Luqman
Muhamad Afiq
Muhamad Amir
Muhamad Hazrul
Muhammad Azwan
Muhammad Irham
Muhammad Muqrees
Muhammad Norhikmah
Muhammad Qayyim
Muhammad Rifdi
Muhammad Shazril
Muhammad Syahmi
Muhammad Zulkarnain
Nazurah Atiqa
Nik Nurfarasya
Noor Lina
Norsyazwani Aina
Nur Adilah
Nur Afrina
Nurul Ain
Qautsar Malini
Raja Al-imran
Rose Mylia
Siti Irdina
Siti Khairunisa
Syaza Hazwani
Wan Muqhriz
etc.

CONTENT

SPORTS SCIENCE (CONT.)

SPORTS MANAGEMENT & RECREATION

SPORTS MANAGEMENT & RECREATION (CONT.)

126 | A. ABRAR
Self-Efficacy and Motivation as Predictors of Physical Activity Status in a Climbing Community.

128 | M. JOHARI
Exploring the Correlation Between Spectator Satisfaction and Attendance at the Malaysian Super League.

130 | H. ZULKIFLE
Unraveling the Relationship Between Coaching Behavior and Athlete Burnout in Malaysian University-level Athletes.

131 | N. SALIM
Exploring the Relationship Between Democratic, Facilitative, and Situational Leadership and Academic Performance Among University Level Student Leaders' in Co-Curricular Training Program.

133 | N. SUHAIMI
The Relationship Between Johor Darul Ta'zim Football Club (JDT) Brand Trust on Fans Loyalty.

134 | N. LARAYATI
Psychological Factors in High-Altitude Trekking: An Exploration of Motivation and Mental Health among Kilimanjaro Hikers.

135 | M. MAZLAN
The Impact of Sleep Quality on Academic Performance and Mental Health among Undergraduate Sports Studies Students.

136 | N. HISAM
Learning Styles and Academic Performance among Student-Athletes: A SUKMA Negeri Sembilan Case Study.

137 | N. NAZERI
Balancing Academics and Athletics: Investigating the Interrelationship of Learning and Communication Styles Among SUKMA Student-Athletes with a Gender-Based Analysis.

139 | M. RASID
The Effect of Athlete Branding on Endorsement Perceptions among Malaysian Elite Academy Football Players.

141 | M. YUSOF
Investigating the Influence of Social Environment, Advertisements, and Tobacco Product Preferences on Smoking Behavior in Malaysian University Students.

143 | L. HAZIM
The Relationship Between Volunteer Motivations and Interpersonal Skills in Mass Participation Sporting Events.

144 | M. IMAN
Investigating the Influence of Event Quality Dimensions on Participant Satisfaction and Loyalty in the KL Standard Chartered Marathon.

146 | M. QAYYIM
Examining Leadership Styles on Employee Performance: A Quantitative Study at a Country Resort in Malaysia.

147 | M. GHANI
Quantifying the Impact of Mobile Gaming Addiction on the Quality of Life of Malaysian Young Urban Adults.

149 | M. ROSMAN
The Impact of Job Satisfaction on Employee Turnover Intention: Evidence from Malaysian Sports Retail Outlet.

151 | M. HAKEEM
Relationship between Job Satisfaction and Job Performance: A Case Study of Al-Ikhsan Sports Putrajaya.

153 | R. AZLAN
Social Dynamics and Loneliness in Esports: Reframing the Relationship in Competitive Gaming.

155 | N. AZIS
Understanding the Role of Gender, Coping Approaches, and Stress Management in a Malaysian Football Organization.

156 | N. QAYYUM
Examining the Effects of Social Media's Impact on Job Performance: A Malaysian Organizational Culture Study.

157 | A. SHUKRI
Physical Activity and Life Satisfaction: A Study in Malaysian Urban Setting.

158 | S. SHARUDIN
Exploring the Relationship Between Leadership Styles and HRM Practices in Organizational Performance.

159 | N. MAHMUD
The Association of the Physical Activity on Mental Health Status among Employees at Semenyih EcoVenture Resort and Recreation.

160 | M. HAZAINOLKIMI
Examining the Relationship between Leadership Styles and Job Satisfaction in Malaysian Sport Studies Faculty.

161 | M. AZMI
The Relationship between Customer Satisfaction and Customer Retention at Sports Direct Seremban.

163 | N. ZAWAWI
Barriers To Leisure-Time Physical Activity Participation Among Youth.

165 | A. KHALID
Exploring the Relationship Between Service Quality and Student Satisfaction in Sports Facility Management: Evidence from a Higher Education Setting..

166 | M. ZULAZIZI
The Impact of Nature Engagement on Student Well-Being: Examining the Relationship Between Outdoor Recreation and Perceived Benefits.

167 | E. ISLEE
Exploring the Tendency to Avoid Physical Activity and Sports in University Students.

CHAIR MESSAGE

Wahidah Tumijan

Dear Colleagues and Participants,

It is with immense pride and gratitude that I welcome you to the proceedings of the IInternational Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing (*i*-SPEAK) 2025. As both the Chair of this program and the Head of our Study Center, I am thrilled to witness such a remarkable gathering of minds from diverse backgrounds, all united by a passion for advancing research in sports science and sports management.

Our goal has been to nurture a research culture that not only celebrates academic achievements but also reinforces the importance of scholarly responsibility and ethical inquiry.

What sets this colloquium apart is the blend of expertise spanning from exercise physiology and biomechanics to sports governance and outdoor studies. Each abstract and presentation reflects not only scholarly excellence but also the personal dedication of those involved, making this a truly collaborative and transformative experience.

Thank you for joining us on this journey of discovery and learning. I hope these proceedings inspire new ideas and forge meaningful partnerships as we continue to explore the ever-evolving landscape of sports and physical exercise research.

BIO

Wahidah Tumijan is the Head of the Study Center at the Faculty of Sports Science & Recreation, UiTM Negeri Sembilan, and her research focuses on physical activity, health and quality of life.

EDITORIAL PREFACE

Adam Linoby

It is with great pleasure that I present the proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing (*i*-SPEAK) 2025. This virtual event, held on 5–6 February 2025 via Google Meet, has been a journey of discovery, collaboration, and passion for research that I am honored to share with you.

Our colloquium was conceived to showcase the research from the graduate scholars from our faculty while offering a vibrant platform for graduate and postgraduate scholars from all over the country. It is heartening to see such diverse minds coming together to share innovative insights and engage in meaningful dialogue that enhances our collective understanding.

The breadth of topics; from exercise physiology, biomechanics, and sports psychology to sports business administration, governance, and outdoor leadership, reflects our commitment to advancing research in sports science and sports management. Each extended abstract and discussion serves as a testament to the dedication of our contributors and the spirit of academic inquiry.

Thank you for taking the time to explore these proceedings. I hope you find the research as inspiring and thought-provoking as I have. Your engagement is vital to nurturing a dynamic academic community that continues to push the boundaries of knowledge.

BIO

Adam Linoby is a Senior Lecturer at UiTM Negeri Sembilan, and his research interests focus on emerging innovation in sport.

SPORTS SCIENCE

This section of the proceedings bring together concise, cutting-edge research in sports science. Topics range from innovative training techniques, such as blood flow restriction, specialized warm-ups, and foam roller therapy to AI-driven tools for personalized exercise and nutrition planning. Equally notable are studies examining digital influences on cognitive function and mental health. Collectively, they highlight the evolving synergy between traditional methods, technological advances, and holistic athlete well-being.

PERSONALIZED PROMPT GENERATOR AND AI CHATBOT FOR DIETARY AND EXERCISE PLANNING: A CONTROLLED INVESTIGATION OF ADHERENCE AND PHYSICAL FITNESS OVER 12 WEEKS IN OLDER MALAYSIAN ADULTS

Qautsar Malini Khairolnezam, Azwa Suraya Mohd Dan, Razif Sazali, Yusandra Md Yusoff Muhammad Zulqarnain, Amrun Haziq, & Adam Linoby*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: linoby@uitm.edu.my

Keywords: Artificial Intelligence, Elderly, Health, Diet, Fitness, Personalized exercise

I. Introduction

This study evaluates the effectiveness of a novel prompt generator (NExGEN) and AI chatbot (ChatGPT) intervention in improving exercise and dietary adherence, and physical fitness among older adults over three months. By comparing pre- and post-intervention outcomes, it addresses gaps in understanding AI-driven personalized strategies for sustained adherence and health improvements in elderly populations [1].

II. Methods

A convenience sample of 18 elderly (>60 yrs old) Malaysians, meeting defined health criteria, completed a 3-month NExGEN-ChatGPT intervention. Pre NExGEN-ChatGPT (Pre-NC) and post NExGEN-ChatGPT (Post-NC) intervention assessments included anthropometric measures, flexibility, balance, muscular strength, endurance, and cardiovascular fitness. Participants utilized ChatGPT (model GPT-4o) [3] for personalized dietary and exercise plans, provided weekly feedback, and completed adherence surveys. Results were analyzed for physical activity adherence, dietary adherence, and physical fitness outcomes.

III. Results and Discussion

A. Changes in Physical Fitness

Participants showed significant improvements in balance [4], handgrip strength [5], chair-stand repetitions [6], and walking distance [7] throughout intervention ($P<0.05$). However, chair-sit-and-reach [8] scores rose but were not statistically significant ($p>0.05$) (Table 1).

TABLE I
Physical Fitness Outcomes Before (Pre-NC) and After (Post-NC) the NExGEN-ChatGPT Intervention.

Assessment	Pre-NC	Post-NC	*p* value
Chair-sit and reach (*cm*)	10.7 ± 3.6	12.3 ± 1.3	0.068
One-leg balance (*sec*)	47.5 ± 17.4	57.2 ± 11.7	*0.049
Handgrip (*kg*)	36.7 ± 3.2	44.1 ± 4.7	*<0.01
30s-Chair-stand (*times*)	13 ± 2.4	14.3 ± 1.9	*0.034
6-meter walking (*m*)	469.1 ± 53	586.1 ± 64	*<0.01

**Significantly different from Pre-NC (P<0.05)*.

B. Physical Activity Adherence

Physical activity adherence was initially high, peaking at 98 ± 3.1% in Week 2, then declined gradually. After a slight drop at Weeks 3–4, a more pronounced decrease emerged by Week 5 (81 ± 3.6%), continued through Week 8 (72 ± 4.2%), and reached 69 ± 4.5% by Week 12.

A one-way ANOVA revealed significant variance in weekly adherence, F=6.11, $p<0.01$. Tukey HSD indicated Week 1 exceeded Weeks 10–12. Weeks 5 and 8 were significantly lower than early weeks but comparable to the final weeks.

C. Dietary Adherence

Dietary adherence varied considerably. Week 1's mean score (42 ± 2.9) stayed stable through Week 3, dipped slightly in Week 4 (39 ± 3.7), and declined by Week 5 (31 ± 6.6). Though partial recovery occurred by Week 7 (37 ± 5.9), levels dropped again from Week 8 onward, reaching 30 ± 6.5 by Week 12.

A one-way ANOVA revealed significant variance in weekly adherence, F=6.13, $p<0.01$. Tukey HSD indicated Week 1 exceeded Weeks 10–12. Weeks 5 and 8 were significantly lower than early weeks but comparable to the final weeks.

IV. Conclusions

The NExGEN-ChatGPT intervention significantly improved physical fitness, while partial improvements in dietary and physical activity adherence highlight the potential of AI-driven programs for older adults. Despite declines in adherence over time, these findings underscore the capacity of tailored interventions to enhance health outcomes. Further studies should refine engagement approaches and explore sustaining adherence, ensuring that AI-based solutions continue to support healthy aging.

Acknowledgment

The authors thank the Home Care Centre (Seremban), the Elderly Care Centre (Seremban), and all participants for supporting this study. Special thanks to Adam Irman, Nur Athirah, Rose Mylia, and Syaza Hazwani for their assistance in data collection.

Q.M., Khairolnezam, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

References

[1] Sosa-Holwerda, A., Park, O. H., Albracht-Schulte, K., Niraula, S., Thompson, L., & Oldewage-Theron, W. (2024). The role of artificial intelligence in nutrition research: a scoping review. Nutrients, 16(13), 2066.

[2] Papastratis, I., Konstantinidis, D., Daras, P., & Dimitropoulos, K. (2024). AI nutrition recommendation using a deep generative model and ChatGPT. Scientific Reports, 14(1), 14620.

[3] Islam, R., & Moushi, O. M. (2024). Gpt-4o: The cutting-edge advancement in multimodal llm. Authorea Preprints.

[4] Vellas, B. J., Wayne, S. J., Romero, L., Baumgartner, R. N., Rubenstein, L. Z., & Garry, P. J. (1997). One‐leg balance is an important predictor of injurious falls in older persons. Journal of the American Geriatrics Society, 45(6), 735-738.

[5] Benton, M. J., Spicher, J. M., & Silva-Smith, A. L. (2022). Validity and reliability of handgrip dynamometry in older adults: A comparison of two widely used dynamometers. PLoS One, 17(6), e0270132.

[6] Özkeskin, M., Özden, F., Ar, E., & Yüceyar, N. (2023). The reliability and validity of the 30-second chair stand test and modified four square step test in persons with multiple sclerosis. Physiotherapy Theory and Practice, 39(10), 2189-2195.

[7] Chan, W. L., & Pin, T. W. (2019). Reliability, validity and minimal detectable change of 2-minute walk test, 6-minute walk test and 10-meter walk test in frail older adults with dementia. Experimental gerontology, 115, 9-18.

[8] Jones, C. J., Rikli, R. E., Max, J., & Noffal, G. (1998). The reliability and validity of a chair sit-and-reach test as a measure of hamstring flexibility in older adults. Research quarterly for exercise and sport, 69(4), 338-343.

////.

COMPARATIVE EFFECTS OF SPORTS MASSAGE AND FOAM ROLLING ON MUSCLE RECOVERY IN UNIVERSITY LEVEL FUTSAL PLAYERS

Husna Yunus[1], Muhamad Noor Mohamed[1], Noor Azila Azreen[1], Raja Nurul Jannat Raja Hussein[1], Muhamad Safiq[1], Nurul Ain Abu Kassim[1], Muhamad Aizzat Adnan[1], Maisharah Shaari[2], & Mardiana Mazaulan[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Futsal, Muscle Soreness, Sport Massage, Foam Roller, Delayed Onset Muscle Soreness

I. Introduction

Muscle soreness is a common challenge among futsal players, impacting performance and recovery. This study evaluates the effectiveness of sport massage (SM) and foam roller (FR) techniques in reducing muscle soreness and compares their efficacy. Addressing gaps in recovery strategies, particularly for futsal players, this research provides insights into evidence-based practices for optimized recovery.

II. Methods

Ten futsal players from UiTM Negeri Sembilan, with at least six months of consistent training, were selected. Participants underwent 15-minute SM and FR sessions targeting quadriceps, hamstrings, adductors, gluteus, and gastrocnemius muscles. Muscle soreness was measured using the Sit-to-Stand test (pain scale), knee extensor (pain scale), and knee flexion range of motion (goniometer) at five intervals: pre-training, immediately post-training, 24, 48, and 72 hours post-training.

III. Results and Discussion

A. Sit to Stand

A mixed ANOVA analysis revealed no significant difference between SM and FR on the pain scale during the Sit-to-Stand test across five time points ($p = 0.876$, $F(1,18) = 0.025$). Both treatments showed similar trends, suggesting no superior effect on pain reduction.

B. Knee Extensor

Similarly, the pain scale for knee extensor strength showed no significant difference between SM and FR ($p = 0.758$, $F(1,18) = 0.098$). Neither treatment displayed a marked advantage in alleviating soreness.

C. Knee Flexion Range of Motion

For knee flexion range of motion (ROM), both treatments yielded comparable results, with no significant difference observed ($p = 0.192$, $F(1,18) = 1.84$). ROM improvements were similar across time points, indicating equivalence in effectiveness.

TABLE I
P-values and effect sizes (η^2) for performance scores (sit-to-stand, knee extensors) and range of motion.

Effect	p	Eta Square
PS (Sit to Stand)	<.001	0.785
PS (Knee Extensor)	<.001	0.786
ROM	0.011	0.056

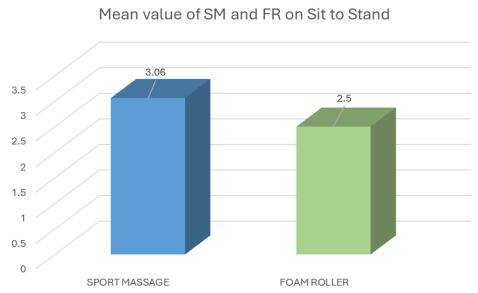


Fig. 1 Mean value of SM and FR on Sit to Stand

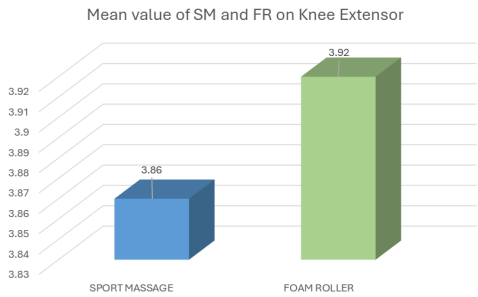


Fig. 2 Mean value of SM and FR on Knee Extensor

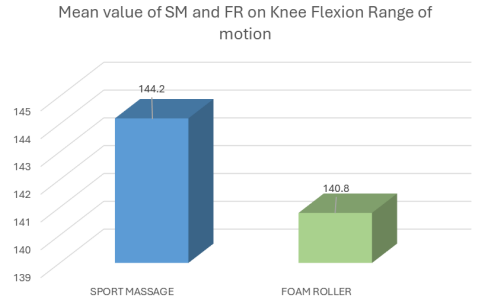


Fig. 3 Mean value of SM and FR on Knee Flexion Range of Motion

Figure 1 shows the mean value of SM and FR on it to stand. The result shows FR smaller than SM, so it shows that FR is better than SM. The main effect of the pain scale was significant. The main different effect for pain scale was not significant. The null hypothesis for the effect of SM and FR on the pain scale was failed to reject. Figure 2 shows the mean value of SM and FR on the knee extensor. The result shows SM smaller than FR, so it shows that SM is better than FR. The main effect of the pain scale was significant. The main different effect for pain scale (knee extensor) was not significant. The null hypothesis for the effect of SM and FR on the pain scale was failed to reject. Figure 3 shows the mean value of SM and FR on Knee range of motion. The result shows FR bigger than SM, so it shows that SM is better than FR. The main effect of ROM was significant. The main different effect for ROM is not significant. The null hypothesis for the effect of SM and FR on the ROM was rejected.

IV. Discussions

The purpose of this study was to compare the effects of Sport Massage (SM) and Foam Roller (FR) on reducing muscle soreness among futsal players at UiTM Negeri Sembilan after a match. Both SM and FR are widely used recovery techniques designed to alleviate delayed onset muscle soreness (DOMS) and enhance athletic recovery. These treatments influence key physiological biomarkers, including the pain scale (PS) and knee range of motion (ROM). The findings indicate that both SM and FR led to a reduction in PS while contributing to improvements in ROM over the recovery period.

Based on the results, Sport Massage (SM) was found to be more effective in reducing pain. Previous studies have demonstrated that SM effectively alleviates symptoms of DOMS, with significant pain reduction occurring within 24 to 48 hours post-intervention [1]. This is attributed to increased blood circulation, reduced muscle tension, and the facilitation of metabolic waste removal. Similarly, this study found that SM contributed to improved ROM [2].

Furthermore, Foam Roller (FR) demonstrated positive effects on muscle recovery, particularly in improving ROM and reducing muscular fatigue [3]. FR techniques, which involve self-myofascial release through controlled pressure application, were found to facilitate muscle relaxation and reduce tension, ultimately contributing to greater flexibility and recovery [4]. Research suggests that FR, when applied at consistent intervals post-exercise, aids in reducing acute muscle damage and alleviating soreness while promoting faster recovery [5].

Additionally, both SM and FR showed a significant effect in reducing muscle injuries caused by excessive strain, supporting their role in mitigating DOMS, which commonly occurs after strenuous exercise or repeated match play. Based on this study's findings, both treatments effectively contributed to pain relief and increased knee ROM, making them viable recovery strategies for futsal players.

V. Conclusions

The study found no significant difference between sport massage and foam roller in reducing muscle soreness among futsal players across pain scale and range of motion measures. Both interventions were equally effective, suggesting either method can be used as part of recovery strategies for futsal athletes.

Acknowledgment

I express my sincere appreciation to those who have been directly and indirectly involved with this research project. Thanks to Madam Mardiana binti Mazaulan and all lecturers for their invaluable guidance during the challenging and demanding process of completing this research. Also, thanks to my parents and all my friends for their constant encouragement and cooperation throughout the way to complete the requirements of the bachelor's degree in sports science.

References

[1] Davis, H. L., Alabed, S., & Chico, T. J. (2020). Effect of sports massage on performance and recovery: A systematic review and meta-analysis. BMJ Open Sport & Exercise Medicine, 6(1). https://doi.org/10.1136/bmjsem-2019-000614

[2] Choroszewicz, P., Dobosiewicz, A. M., & Badiuk, N. (2020). Sports massage as a method of preventing delayed onest muscle soreness. Pedagogy and Psychology of Sport, 6(2), 104–112. https://doi.org/10.12775/pps.2020.06.02.010

[3] Fitrian, Z. A. (2023). Enhancing recovery from plyometric circuit training: The synergistic impact of dynamic stretching, BCAA supplementation, and sports massage on Doms. *Journal Sport Area*, *8*(3), 396–409. https://doi.org/10.25299/sportarea.2023.vol8(3).14191

[4] Wiewelhove, T., Döweling, A., Schneider, C., Hottenrott, L., Meyer, T., Kellmann, M., Pfeiffer, M., & Ferrauti, A. (2019). A meta-analysis of the effects of foam rolling on performance and recovery. Frontiers in Physiology, 10. https://doi.org/10.3389/fphys.2019.00376

[5] Anderson, B. L., Harter, R. A., & Farnsworth, J. L. (2021). The acute effects of foam rolling and dynamic stretching on athletic performance: A critically appraised topic. *Journal of Sport Rehabilitation*, *30*(3), 501–506. https://doi.org/10.1123/jsr.2020-0059

EVALUATING COGNITIVE VIGILANCE LEVEL BETWEEN VIDEO GAME PLAYERS AND NON-GAMERS AFTER COGNITIVE FATIGUE TASK

Muhammad Isamuddin Zani, Amelia Natasya Mohd Zaid, Muhammad Ariff Munshir Mohd Pozi, Muhammad Haiqal Zianuddin, Muhammad Hariz Mohd Nizam, Raja Nurul Jannat Raja Hussain, & Muhamad Noor Mohamed*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Video games, Cognitive fatigue, Attention, Vigilance, Psychomotor Vigilance Task

I. Introduction

Video game players (VGPs) may exhibit unique cognitive advantages, including enhanced vigilance [1]. However, the effects of cognitive fatigue on these abilities remain underexplored [2]. The present study evaluates vigilance performance differences between gamers and non-gamers after a cognitively taxing task, addressing gaps in understanding the role of VGPs in mitigating cognitive fatigue while simultaneously aiming to clarify the potential of gaming in enhancing cognitive endurance.

II. Methods

Thirty participants (N = 30) from UiTM Negeri Sembilan, classified as gamers (n = 15, gaming hours > 7 hours/week) and non-gamers (n = 15, gaming hours < 1 hour/week), were recruited. Cognitive fatigue was induced using a 45-minute Stroop test for gamers, while non-gamers viewed a documentary entitled 'NASA Cassini Mission' straight from the source (Youtube). Cognitive vigilance was assessed at two different times (pre-and-post) cognitive load using the Psychomotor Vigilance Task (PVT) via an app in the App Store, capturing sustained vigilance and reaction time data. A Paired Sample T-test was conducted to seek differences within the group, followed by a magnitude of mean difference analysis.

III. Results and Discussion

A. Cognitive Vigilance Performance Among Gamers and Non-Gamers

According to Table 1, both gamers (t = -1.686, df = 13, p = 0.116) and non-gamers (t = -1.887, df = 15, p = 0.079) exhibited a slight decrease in vigilance performance pre-to-post task, but the decline was not statistically significant (p > 0.05). While gamers initially showed marginally faster reaction times, the difference was negligible. Surprisingly, the expected advantage of gamers in maintaining vigilance was not observed, as both groups demonstrated similar susceptibility to cognitive fatigue (Table 1).

B. Differentiate Vigilance Performance Between Gamers and Non-Gamers After a Cognitively Taxing Task

Post-task, both groups (gamers: 3.86s, non-gamers: 4.60s) experienced slower reaction times, indicating cognitive fatigue. However, the decline was not substantial. Gamers maintained slightly better performance, but the difference was not statistically significant, suggesting limited resistance to fatigue (Table 1). The anticipated advantage of the gaming experience did not translate into superior vigilance, as both groups showed comparable post-task performance [3].

TABLE I
Pre- and Post-Test Score Comparison for Gamers and Non-Gamers

	Pre	Post	Post – Pre	*p*	*t*
Gamers	3.41	3.86	-0.453	0.12	-1.67
Non-gamers	4.24	4.60	-0.358	0.79	-1.89

IV. Conclusions

This study highlights the cognitive resilience of VGPs under cognitive fatigue, with gamers showing a slightly superior vigilance compared to non-gamers, yet not statistically significant. Findings underscore the potential of gaming to mitigate fatigue-related cognitive decline, offering insights into the application of gaming in enhancing cognitive performance.

Acknowledgment

The authors thank the participants from Universiti Teknologi MARA, Negeri Sembilan branch, Malaysia.

References

[1] Dale, G., & Green, C. S. (2017). The changing face of video games and video gamers: Future directions in the scientific study of video game play and cognitive performance. *Journal of Cognitive Enhancement*, 1(3), 269–280.

[2] Strobach, T., & Schubert, T. (2017). Video game practice optimizes executive control skills in dual-task and task-switching situations. *Frontiers in Psychology*, 8, 1167.

[3] Clark, K., & Calloway, M. (2020). Cognitive endurance in action video game players: Effects of fatigue on attention and vigilance. *Cognitive Research: Principles and Implications*, 5(24).

REASSESSING THE ROLE OF BODY COMPOSITION IN LEG POWER PERFORMANCE IN A YOUNG ADULT COHORT

Ameer Hamzah, Adam Linoby, Razif Sazali, Yusandra Md Yusoff, Amrun Haziq, & Muhammad Zulqarnain*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: zulqarnain9837@uitm.edu.my

Keywords: Body Mass Index, Waist Circumference, Leg Power, Young Adults, Anthropometric Correlations

I. Introduction

Body Mass Index (BMI), waist circumference, and leg power are key indicators of physiological health, yet their interrelationships remain underexplored. Existing research largely focuses on athletes, leaving gaps in understanding recreational student populations. This study examines these correlations and identifies physiological characteristics in young adults, addressing limited research on the combined role of BMI, waist measurements, and leg power in this demographic [1,2].

II. Methods

This study included 40 young adults (20 males, 20 females), aged 18–25. BMI and waist circumference were measured using standard tools and protocols, while leg power was assessed using vertical jump tests recorded with the MyJump2 app. Data analysis utilized Pearson's Correlation Test and SPSS (version 25), with statistical significance set at $p<0.05$.

III. Results and Discussion

A strong positive correlation (r = 0.902, $p<0.001$) was observed between BMI and waist circumference, indicating their interconnectedness in reflecting body composition trends. However, BMI showed a weak, non-significant correlation with leg power (r = 0.031, $p>0.05$), suggesting limited influence on vertical jump performance. Similarly, waist circumference also displayed a weak, non-significant correlation with leg power (r = 0.142, $p>0.05$) highlighting the importance of other factors like muscle strength in leg power outcomes.

TABLE I
Correlations Between BMI, Waist Circumference and Leg Power

		BMI	WC	LP
BMI	Pearson	1	.902**	.031
	Sig. (2-tailed)		<.001	.855
WC	Pearson	.902**	1	.142
	Sig. (2-tailed)	<.001		.397
LP	Pearson	.031	.142	1
	Sig. (2-tailed)	.855	.397	
	N	38	38	38

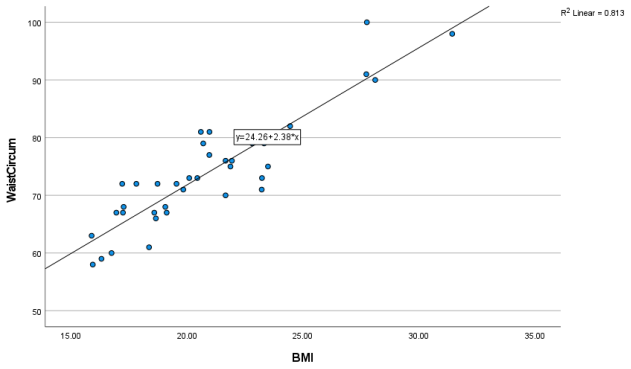


Fig. 1 A correlation between waist circumference and BMI shows a strong significance (r = 0.90, p <0.001).

IV. Conclusions

This study reveals a strong relationship between BMI and waist circumference, emphasizing their utility in assessing body composition. However, neither BMI or waist circumference significantly impacts leg power in young adults, suggesting other determinants like muscle strength. These findings provide insights for targeted health assessments and further research on performance predictors in non-athletic populations.

Acknowledgment

Special thanks to Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus and our colleagues for their invaluable assistance.

References

[1] Anand, S., & Kaur, J. (2024). Association between Body Mass Index (BMI) and waist circumference with leg power in cricket players. Journal of Bodywork and Movement Therapies, 28, 102-107.
[2] Zhang, Y., & Wang, S. (2023). Relationship between a body shape index and muscle strength in Chinese university students. BMC Public Health, 23, 456.

A., Hamzah, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

A COMPARATIVE STUDY OF OFFENSIVE STRATEGIES IN LFIPT FUTSAL SUPER LEAGUE 2023

Nur Fatihiliana Idris[1], Raja Nurul Jannat Raja Hussain[1], Muhamad Noor Mohamed[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Noor Azila Azreen Md Radzi[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: azila_azreen712@uitm.edu.my

Keywords: Offensive tactics, Futsal performance, Winning strategies, Set pieces, Counterattacks

I. Introduction

Futsal is a fast-paced sport in which offensive tactics play a crucial role in determining match outcomes. Strategies such as positional play and high pressing significantly enhance goal-scoring opportunities, setting winning teams apart. This study expands the existing futsal literature, providing valuable insights for coaches [1]. Effective tactics create scoring chances, losing possession can shift control to the opposing team, making recovery challenging for the attackers [2].

II. Methods

Observational and hand notation methods analyzed video footage from 90 matches in the 2023 LFIPT Futsal Super League. Offensive tactics, including counterattacks, high press, set pieces, and positional play, were analyzed using independent t-tests. Match videos from the 2023 LFIPT Super League (male) were sourced from YouTube's FIBM-TV channel. Additionally, data is considered normal if the Kolmogorov-Smirnov value exceeds 0.05 [3]. Normality is also assumed if the skewness and kurtosis ratio to their standard errors remains within ±2.0 [4].

III. Results and Discussion

Results show significant differences between winning and losing teams in counterattacks, set pieces, diagonal runs and crosses, and pivotal play.

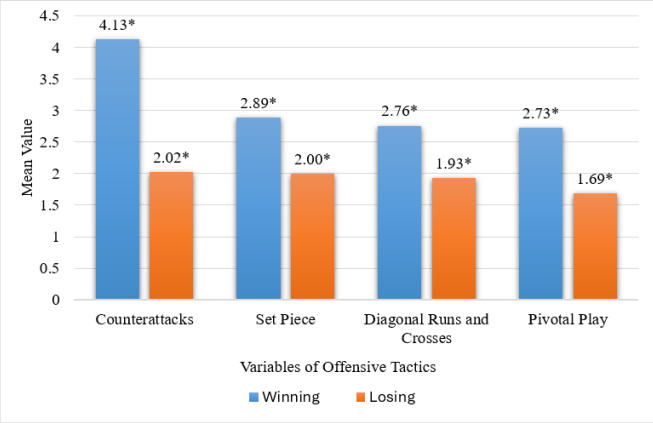
There is a significant difference between winning and losing in counterattacks, set pieces, diagonal runs and crosses, and pivotal play, according to the results of an independent *t*-test. The mean value for winning counterattacks is 4.13 ± 1.22. The mean loss is 2.02 ± 0.78. But the $p<0.001$ and the *t*-value is 75.1. Therefore, the null hypothesis was rejected for counterattacks. Winning teams excel in counterattacks by maintaining strong defense and exploiting opponents' mistakes with speed and precision. In the LFIPT Futsal Super League 2023, rapid transitions with minimal passes proved effective. Research shows counterattacks completed within 5–10 seconds and under five passes are most successful. Successful teams attack through central areas, with goalkeepers initiating fast breaks. To optimize counterattacks, teams must prioritize speed, quick decision-making, and precise ball distribution. As Ricardinho said, "The best teams know when to press and when to explode forward with speed." [5].

In addition, the set piece indicates that 2.89 ± 0.80 is the mean value for winning. Losing is 2.00 ± 0.88 on average. But the $p<0.001$ and the *t* value is 87.31. Thus, the second variable set piece shows reject the null hypothesis. Set pieces create structured scoring opportunities through pre-planned plays. Futsal teams rely on corner kicks, indirect, and direct free kicks for attacking success. As Falcão stated, "A well-executed set piece is as good as an open play goal" [6].

The mean winning value for diagonal runs and crosses is 2.76 ± 1.38. The average loss is 1.93 ± 0.78. Nevertheless, the $p<0.001$ and the *t*-value is 69.41. Therefore, the null hypothesis was rejected for diagonal runs and crosses. Diagonal runs and crosses break defensive structures and create space for attackers. These movements increase unpredictability and force defenders out of position, enhancing scoring chances. As Sergio Lozano said, "If you can make diagonal runs, you create spaces where none existed before" [7].

Next, pivotal play reveals that the mean 2.73 ± 0.90 for winning. Losing is 1.69 ± 0.82 on average. The $p<0.001$, though, and the *t*-value is 87.4. Due to that, the null hypothesis was rejected for pivotal play. Pivotal play helps teams maintain possession and build structured attacks. The pivot player orchestrates offensive maneuvers by distributing passes and linking play. Winning teams rely on pivots for ball control, offensive positioning, and seamless transitions. As Fernandão stated, "A good pivot makes everyone around him better" [8].

N.F., Idris, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*



*p<0.05 (italic)

Fig. 1 Comparison between winning and losing on offensive strategies.

IV. Conclusions

Winning futsal teams are excellent at set pieces, diagonal runs and crosses, counterattacks, and pivotal play, all of which help to generate scoring opportunities. The successful execution of set pieces and pivotal play enhances team coordination and goal conversion. In contrast, high press and positional play show no significant impact on outcomes without effective dynamic tactics. Overall, success in futsal relies on precise strategy execution, tactical training, and game awareness [9].

Acknowledgment

The authors thank all participants for supporting this study. Special thanks to Nurul Zarith Alia and Siti Idrina Najwa for their assistance in data collection. The authors also extend heartfelt gratitude to MRS. Noor Azila Azreen Md Radzi for her invaluable guidance, encouragement, and expertise throughout this research.

References

[1] Amani-Shalamzari, S., Farhani, F., Rajabi, H., Abbasi, A., Sarikhani, A., Paton, C., Bayati, M., Berdejo-Del-Fresno, D., Rosemann, T., Nikolaidis, P. T., & Knechtle, B. (2019d). Blood flow restriction during futsal training increases muscle activation and strength. Frontiers in Physiology, 10. https://doi.org/10.3389/fphys.2019.00614

[2] Ohmuro, T., Iso, Y., Tobita, A., Hirose, S., Ishizaki, S., Sakaue, K., & Yasumatsu, M. (2020d). Physical match performance of Japanese top-level futsal players in different categories and playing positions. Biology of Sport, 37(4), 359–365. https://doi.org/10.5114/biolsport.2020.96322

[3] Royston, J. P. (1982). An extension of Shapiro and Wilk's W test for normality to large samples. Journal of the Royal Statistical Society Series C (Applied Statistics), 31(2), 115. https://doi.org/10.2307/2347973

[4] Brady, C., Irisawa, T., Iino, T., Ohkuma, M., Arnold, D., & Denman, S. (2015). Gibbsiella papilionis Kim et al. 2013 is a later heterotypic synonym of Gibbsiella dentisursi Saito et al. 2013. International Journal Of Systematic And Evolutionary Microbiology, 65(Pt_12), 4788–4791. https://doi.org/10.1099/ijsem.0.000649

[5] Tannomo, H., 6315107843. (2017). analisis set piece (direct free kick, indirect free kick dan corner kick) tim futsal putra universitas negeri jakarta pada liga mahasiswa regional dki jakarta [thesis]. fakultas ilmu olahraga universitas negeri jakarta.

[6] Balyan, M., & Vural, F. (2018). Futsal World Cup: Differences created by winning, losing and drawing variables in scored goals and offensive variations. Journal of Education and Training Studies, 6(5), 65. https://doi.org/10.11114/jets.v6i5.3147

[7] Balyan, M., & Vural, F. (2018). Futsal World Cup: Differences created by winning, losing and drawing variables in scored goals and offensive variations. Journal of Education and Training Studies, 6(5), 65. https://doi.org/10.11114/jets.v6i5.3147

[8] Yarmolynskyi, L. (2016). Training of young football players with use of modern innovative approaches. Слобожанський Науково-спортивний Вісник, 4(54), 128–131. https://doi.org/10.15391/snsv.2016-4.023

[9] Gioldasis, A. (2018c). Changes of Technical Skills during an Official Futsal Game. International Journal of Sport Culture and Science, 6(28), 359–371. https://doi.org/10.14486/intjscs767

AN ACUTE EFFECTS OF BLOOD FLOW RESTRICTION ON MUSCLE OXYGENATION AND BLOOD GLUCOSE DURING YO-YO INTERMITTENT RECOVERY LEVEL 1 TRAINING AMONG HANDBALL ATHLETES

Muhammad Syahmi Irsyad Ishak, & Nurul Ain Abu Kasim*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: nurulain755@uitm.edu.my

Keywords: Muscle oxygenation, Blood glucose, Athletic training, Blood flow restriction, Endurance performance

I. Introduction

Blood flow restriction (BFR) training may enhance muscle oxygenation and blood glucose levels [1]. However, its acute effects remain unclear during high-intensity intermittent exercise like Yo-Yo Intermittent Recovery Level 1 (Yo-Yo IR1) [2,3]. This study evaluates the impacts of BFR on muscle oxygenation, blood glucose, and performance metrics in handball athletes during Yo-Yo IR1 training sessions.

II. Methods

The Yo-Yo IR1 test was conducted on a handball court using standardized protocols with cones, audio cues, and precise measurements. Muscle oxygenation was monitored using a MOXY device placed on the right hamstring [4], while blood glucose levels were assessed pre- and post-test using the GE Max Plus system with a finger-prick method. Athletes were randomized into BFR (using 60 mmHg Dura-Cuff pressure) and control groups. Key metrics, including performance, oxygenation, and glucose levels, were analyzed.

III. Results and Discussion

A. Muscle Oxygenation Level

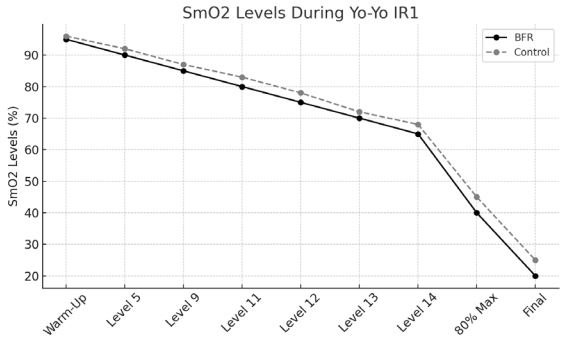


Fig. 1 Change Δ in muscle oxygenation (SmO_2%) during pre- and post-tests in Yo-Yo IR1 (mean ± SD).

Muscle oxygenation levels (SmO_2%) significantly decreased from pre- to post-test in both BFR and control groups (p<0.001, Figure 1). The BFR group exhibited a larger decline in SmO_2%, reflecting increased muscular stress during training. These results align with prior findings indicating BFR enhances training stimulus, though oxygenation demands are greater under restricted conditions.

A. Blood Glucose Analysis

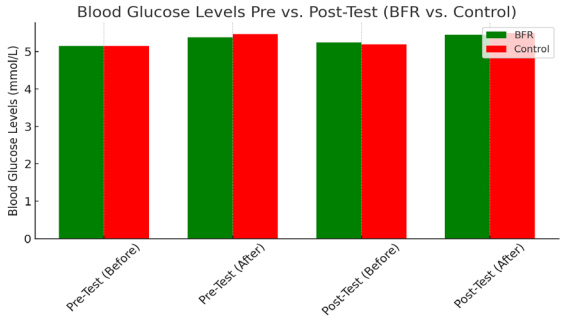


Fig. 2 Change Δ in blood glucose levels during pre- and post-tests in Yo-Yo IR1 (mean ± SD).

Blood glucose levels significantly increased after the post-test for all individuals (p<0.001, Figure 2). The blood glucose increase observed after the post-test compared to the pre-test reflects the physiological response to exercise. However, individual variations in blood glucose increase were noted post-recovery, with no consistent patterns of significant change observed (p>0.05).

B. Endurance Performance

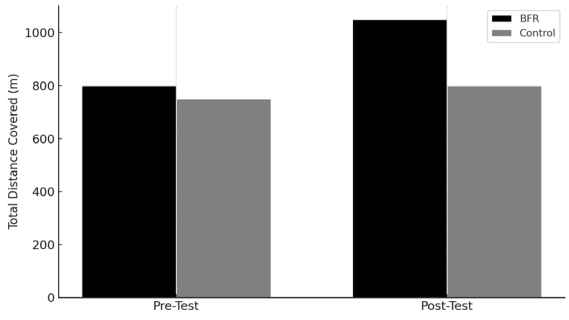


Fig. 1 Change Δ in total distance covered in Yo-Yo IR1 by the BFR and control groups (mean ± SEM).

The BFR group showed a statistically significant improvement in total distance covered during Yo-Yo IR1

M.S.I., Ishak, & N.A.A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

compared to the control group (p<0.05, Figure 3). This indicates that BFR training may elicit superior performance adaptations during high-intensity intermittent exercise. These findings align with previous research highlighting the potential of BFR to enhance endurance and recovery performance [6,7,8].

IV. Conclusions

This study highlights the excellent effectiveness of blood flow restriction in enhancing performance during the Yo-Yo IR1. Athletes in the blood flow restriction condition demonstrated significant improvements in total distance covered and blood glucose levels, with significant increases in muscle oxygenation levels demands. These results emphasize the outstanding potential of blood flow restriction to optimize recovery, endurance, and overall athletic performance in high-intensity intermittent exercises.

Acknowledgment

The author would like to thank all participants for their time and effort in this study.

References

[1] Elgammal, M., Hassan, I. H. I., Eltanahi, N., & Ibrahiem, H. (2020). The effects of repeated sprint training with blood flow restriction on strength, anaerobic, and aerobic performance in basketball. International Journal of Human Movement and Sports Sciences, 8(6), 462–468.

[2] Christiansen, D., & Hostrup, M. (2020). High-intensity resistance training combined with blood flow restriction improves muscle diameter and oxygen delivery. *Scandinavian Journal of Medicine & Science in Sports, 30*(8), 765-777.

[3] Hill, E. C., Housh, T. J., Keller, J. L., & Smith, C. M. (2021). Patterns of responses and time-course of changes in muscle size and strength during low-load blood flow restriction resistance training. *European Journal of Applied Physiology, 121*(2), 215-229.

[4] Christiansen, D., & Hostrup, M. (2020). High-intensity resistance training combined with blood flow restriction improves muscle diameter and oxygen delivery. *Scandinavian Journal of Medicine & Science in Sports, 30*(8), 765-777.

[5] Brumitt, J., Hutchison, M. K., & Kang, D. (2020). Rotator cuff muscle recovery with low-load resistance and blood flow restriction. *Journal of Orthopaedic & Sports Physical Therapy, 50*(5), 350-362.

[6] Formiga, M. F., Fay, R., & Hutchinson, S. (2020). Aerobic training with blood flow restriction: Effects on vascular function and performance. *Journal of Applied Physiology, 129*(6), 987-996.

[7] Minniti, M. C., Statkevich, A. P., & Kelly, R. L. (2020). Short-term low-intensity resistance training with blood flow restriction: Muscle size and strength outcomes. *Journal of Sports Rehabilitation, 29*(3), 290-302.

[8] Wortman, R. J., & Brown, S. M. (2021). Sprint interval training with blood flow restriction: Enhancing speed and anaerobic capacity. *International Journal of Sports Physiology and Performance, 16*(2), 185-195.

THE EFFECTS OF RAISE, ACTIVATE, MOBILISE AND POTENTIATE (RAMP) WARM-UP PROTOCOL ON FUTSAL PERFORMANCE

Ahmad Amirul Mukminin Roslan[1], Muhamad Noor Mohamed[1], Noor Azila Azreen Md Radzi[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Raja Nurul Jannat Raja Hussain[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: nuruljannat@uitm.edu.my

Keywords: RAMP Warm Up, Futsal Performance, Speed, Agility, Endurance

I. Introduction

The RAMP warm-up protocol, combining aerobic activity, flexibility, and sport-specific exercises, is underutilized in futsal despite its potential benefits [1,2,3]. This study examines its impact on speed, agility, and endurance in male futsal players, addressing gaps in conventional warm-up practices.

II. Methods

Sixteen male futsal players, selected via purposive sampling, performed RAMP and traditional warm-up protocols. Speed was assessed using a 20-meter sprint test, agility with the T-test, and endurance through the Yo-Yo Intermittent Recovery Test. The RAMP protocol included raising (5 minutes), activating and mobilizing (5 minutes), and potentiating (10 minutes) phases to optimize performance metrics.

III. Results and Discussion

The RAMP protocol significantly improved speed (3.97s to 3.35s, $p<0.01$) and endurance (Yo-Yo scores: 7.66 to 10.04, $p<0.05$) but showed limited improvement in agility (10.58s to 10.36s, $p>0.06$). Compared to traditional warm-ups, RAMP achieved greater endurance gains ($p=0.003$; Figure 1). Challenges included precise timing and individual response variability, with insights suggesting its sport-specific nature as key to efficacy.

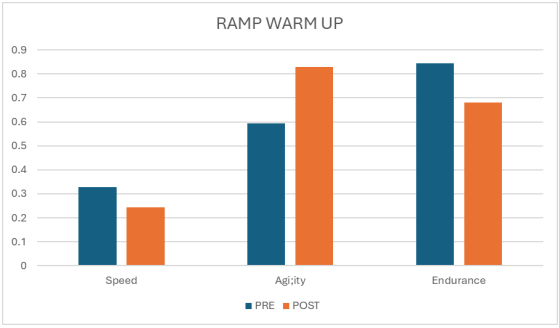


Fig. 1 RAMP group of futsal player with their speed,agility and endurance results

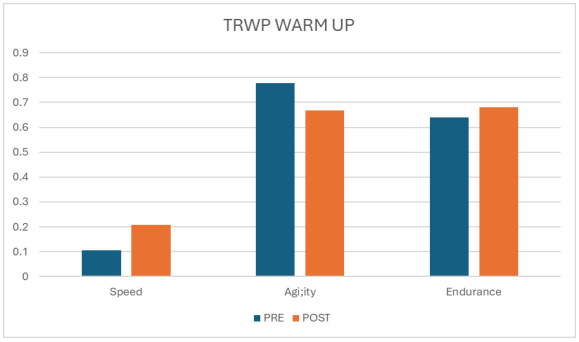


Fig. 2 TRWP group of futsal players with their speed, agility and endurance results.

The reduction in sprint time suggests that the activation and potentiation phases of RAMP contribute effectively to neuromuscular readiness, aligning with previous findings that emphasize the role of dynamic warm-ups in sprint performance [4]. Similarly, the Yo-Yo test improvement indicates enhanced endurance capacity, potentially due to improved cardiovascular and muscular activation, which is consistent with studies highlighting the benefits of structured warm-up protocols in aerobic performance [5].

However, the marginal change in agility suggests that while RAMP may enhance linear speed, it may not sufficiently address the multidirectional demands required for agility improvements. This finding aligns with previous research indicating that agility benefits may require sport-specific drills beyond warm-up routines [6]. Additionally, the greater endurance gains compared to traditional warm-ups suggest that RAMP provides a more structured physiological preparation, supporting the notion that tailored warm-up strategies outperform generic approaches [5].

Despite these benefits, challenges such as precise timing and individual response variability highlight the need for customization based on athlete needs and sport demands. Future studies should explore how modifications in the

RAMP protocol might enhance agility outcomes and address variability in athlete responses.

IV. Conclusions

The RAMP warm-up protocol approach highlights its potential as a superior alternative for optimizing performance, though agility benefits were moderate. Effective implementation requires adherence to its structured phases.

Acknowledgment

The authors thank the UiTM Seremban Futsal players for their participation.

References

[1] Jeffreys, I. (2019). The warm-up revisited: The ramp method as a key component of effective preparation for physical activity. Strength & Conditioning Journal, 41(2), 31-39.

[2] Wentzell, M. et al. Effects of the FIFA11+ warm-up program on speed, agility, and vertical jump performance in adult female amateur soccer players. Int. Phys. Med. Rehabil. J. 2019, 4, 219–224.

[3] Trajkovic, N. et al. Short-Term FIFA 11+ Improves Agility and Jump Performance in Young Soccer Players. Int. J. Environ. Res. Public Health 2020, 17, 2017.

[4] McGowan, C. J., Pyne, D. B., Thompson, K. G., & Rattray, B. (2015). Warm-up strategies for sport and exercise: Mechanisms and applications. Sports Medicine, 45(11), 1523–1546.

[5] Bishop, D. J., Girard, O., & Mendez-Villanueva, A. (2021). Repeated-sprint ability – Part II: Recommendations for training. Sports Medicine, 51(9), 1909–1927.

[6] Chaabene, H., Negra, Y., Moran, J., Prieske, O., Sammoud, S., & Behm, D. G. (2018). Effects of dynamic stretch training within warming-up on muscle force, balance, and functional performance. Frontiers in Physiology, 9, 1432.

SMARTPHONE ADDICTION EFFECT ON PHYSICAL ACTIVITY LEVEL PARTICIPATION AMONG MALE ADULTS IN LOST WORLD OF TAMBUN

Mohamad Hafiz Nasar, & Wahidah Tumijan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wahidah06@uitm.edu.my

Keywords: Smartphone Addiction, Physical Activity, Participation level, Leisure environment, Health behavior

I. Introduction

Smartphone addiction, particularly in recreational contexts, is becoming a significant concern, as it often competes with activities that are crucial for physical and mental well-being. Prolonged smartphone use, especially during leisure time, has been linked to sedentary behavior, contributing to health issues like obesity, poor posture, and cardiovascular problems [1]. Excessive screen time also reduces physical activity, such as exercise and outdoor sports, essential for a healthy lifestyle [2]. As smartphone use grows for entertainment and social interaction, finding a balance between digital engagement and physical activity is crucial for well-being. This study investigates the relationship between smartphone addiction and physical activity participation among male adults at Lost World of Tambun. By examining addiction levels, activity engagement, and their interrelationship, this research addresses a significant gap, offering insights into behavioral patterns in leisure environments and contributing to strategies promoting healthier lifestyles.

II. Methods

This study involved 371 male adults, aged 20 to 30 years and above, in Lost World of Tambun. Smartphone addiction was measured using the Smartphone Addiction Scale (Short Version) [3], and physical activity levels were assessed via the International Physical Activity Questionnaire (Short Version) [4]. Correlational and regression analyses were conducted to examine the relationship between smartphone addiction and physical activity based on participant responses to the questionnaires.

III. Results and Discussion

A. Smartphone Addiction

The mean smartphone addiction score among participants was 3.40 ± 1.88, indicating moderate addiction levels. This suggests that smartphone use is prevalent and potentially habit-forming among male adults in Lost World of Tambun, warranting attention to behavioral interventions targeting excessive usage in this recreational environment. Addiction to smartphone use has been linked to various mental and physical health issues, including anxiety [5], depression [6], stress [7] and sleep disorder [8].

B. Physical Activity Level

High physical activity levels were observed in (n = 220; 59.3%) of participants, with (n = 69; 18.6%) reporting moderate activity and (n = 82; 22.1%) showing low activity (Figure 1). These findings suggest a need for targeted strategies to promote increased physical activity among less active individuals while maintaining engagement in physically active groups. High physical activity levels prevent health issues like obesity, cardiovascular diseases, and mental disorders [9], while moderate exercise boosts cardiovascular health [10], and low activity increases risks of obesity and mental health problems [11].

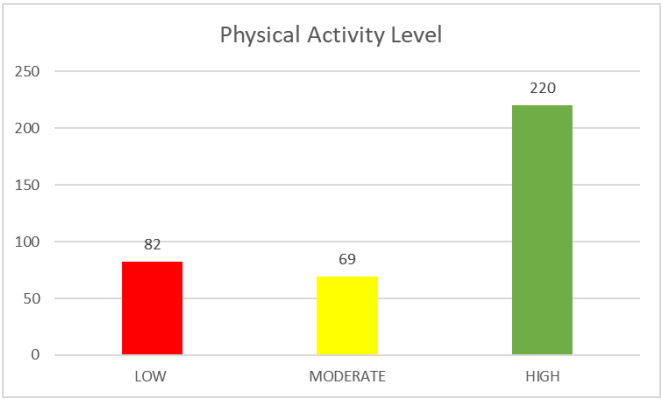


Fig. 1 Physical Activity Level Frequency among male adults in Lost World of Tambun.

C. Smartphone Addiction and Physical Activity Level

A strong negative correlation (r = -0.898) was found between smartphone addiction and physical activity levels. Higher addiction scores significantly corresponded to reduced physical activity, confirmed *through scatter* plot analysis (Figure 2). These findings highlight the detrimental impact of smartphone addiction on physical activity participation and emphasize the need for intervention programs.

M.H., Nasar, & W., Tumijan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

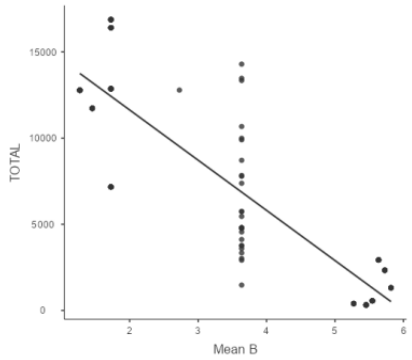


Fig. 2 Correlation between Smartphone Addiction (mean) and Physical Activity Level (Total) among male adults in Lost World of Tambun

IV. Conclusions

This study highlights a moderate prevalence of smartphone addiction and its significant negative correlation with physical activity among male adults in Lost World of Tambun. Findings emphasize the importance of reducing smartphone addiction to promote physical activity. Intervention programs tailored for low-activity individuals are essential for healthier lifestyle promotion.

Acknowledgment

The authors sincerely thank the male adults participants in Lost World of Tambun, Perak.

References

[1] Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. International Journal of Environmental Research and Public Health, 14(3), 311

[2] Müller, D., Fuchs, R., & Lüddecke, D. (2020). Impact of digital media use on physical activity in adolescents. Journal of Youth Studies, 23(5), 694-711

[3] Kwon, M., Lee, J. Y., Won, W. Y., Park, J. W., Min, J. A., & Kim, D. J. (2013). Development and validation of a smartphone addiction scale (SAS). PLOS ONE, 8(12), e83558.

[4] Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., Pratt, M., & Ekelund, U. (2003). International Physical Activity Questionnaire: 12-country reliability and validity. Medicine & Science in Sports & Exercise, 35(8), 1381-1395.

[5] Elhai, J. D., Levine, J. C., & Hall, B. J. (2018). The relationship between mobile phone use, anxiety, and depression: A meta-analysis. Computers in Human Behavior, 89, 220-229.

[6] Elhai, J. D., Yang, H., Fang, J., Bai, H., & Hall, B. J. (2019). Mobile phone addiction and depression: A meta-analysis of the relationship between mobile phone use and depression. Psychiatry Research, 278, 48-56.

[7] Xu, J., Tan, Y., Yu, J., Zhang, X., & Zhang, H. (2019). The impact of smartphone addiction on stress and its potential mediators: A cross-sectional study. International Journal of Environmental Research and Public Health, 16(24), 5140.

[8] Chung, K. F., Yeung, W. F., Ho, F. Y., & Chan, M. F. (2018). Sleep disturbances and their relationship with smartphone use in college students: A cross-sectional study. Journal of Behavioral Addictions, 7(4), 726-734.

[9] The importance of high physical activity levels in preventing various health issues such as obesity, cardiovascular diseases, and mental health disorders is well-documented (Warburton, Nicol, & Bredin, 2006)

[10] Booth, F. W., Roberts, C. K., & Laye, M. J. (2012). Lack of physical activity as a major cause of chronic diseases. Comprehensive Physiology, 2(2), 1143-1211.

[11] Bouchard, C., Blair, S. N., & Haskell, W. L. (2012). Physical activity and health. Human Kinetics.

ISOMETRIC HANDGRIP TRAINING ENHANCES COGNITIVE PERFORMANCE THROUGH IMPROVED REACTION TIME AND ACCURACY

Intan Shahira Farisha Sa'odi, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: yusandra@uitm.edu.my

Keywords: Isometric exercise, Handgrip training, Reaction time, Accuracy, Cognitive enhancement

I. Introduction

This study examines the acute effects of short-term interval handgrip exercise on cognitive function. By comparing reaction time, accuracy, and heart rate responses between exercise and control groups, we aim to determine whether isometric exercise enhances cognitive performance [1]. Addressing a research gap, this study explores the potential of handgrip exercise as a low-impact cognitive enhancement tool for individuals unable to engage in dynamic exercises.

II. Methods

Sixteen FSR recreational students participated in the study, divided into an exercise and a control group. Both groups completed cognitive tasks (Stroop and Go/No-Go). The exercise group performed isometric interval handgrip exercise at 25% submaximal effort, while the control group rested. Post-exercise, both groups repeated cognitive tasks. Accuracy, reaction time, and heart rate were recorded. Data were analyzed using independent *t*-tests, paired *t*-tests, and Pearson correlation.

III. Results and Discussion

A. Reaction Time and Accuracy

Levene's test shows unequal variances for Go/No-Go RT ($p = 0.014$) but not for other tasks ($p>0.05$). Reaction time is lower, and accuracy is higher in the exercise group, suggesting improved cognitive performance (Figure 1). Exercise enhances speed and accuracy, while control groups show inconsistent performance [2].

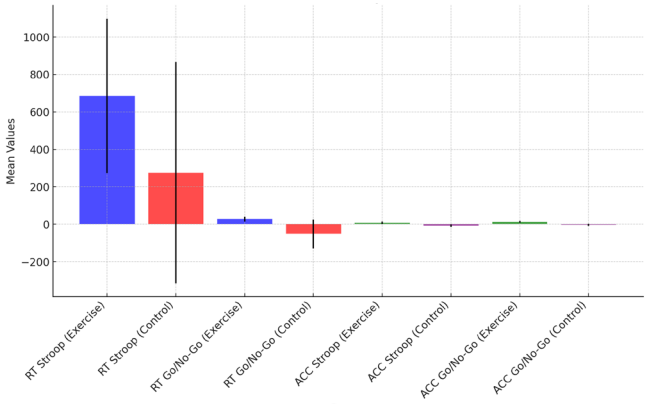


Fig. 1 Mean Reaction Time and Accuracy Across Experimental Conditions: The bar plot illustrates the mean values of reaction time (RT) and accuracy (ACC) for the Stroop and Go/No-Go tasks under exercise and control conditions. Error bars represent standard deviations

B. Pre and Post Results of Reaction Time and Accuracy

Normality assumption analysis is met ($p>0.05$), allowing a paired *t*-test. Reaction time significantly decreased in the exercise group (2170 ms to 1458 ms) but less in the control group. Accuracy improved with exercise but remained stable in the control group (Table 1). A large effect size (Cohen's *d* = 0.96) suggests exercise enhances cognitive performance.

TABLE I
Pre and Post Results of Reaction Time (RT) and Accuracy (Acc)

Condition	Mean	Mean	SD
Exercise Pre RT	2170	459.34	162.4
Exercise Post RT	1458	283.36	100.18
Exercise Pre Acc	169	15.78	5.58
Exercise Post Acc	189	8.99	3.18
Control Pre RT	2264	379.82	134.29
Control Post RT	2041	414.86	146.68
Control Pre Acc	193	3.65	1.29
Control Post Acc	185	7.17	2.53

I.S.F., Sa'odi, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

C. Heart Rate Responses and Reaction Time

A strong positive correlation (r = 0.76, p<0.001) was observed between heart rate changes and reaction time improvement in the Go/No-Go Task. This indicates a physiological link between cardiovascular responses and cognitive performance. The findings align with prior research suggesting that acute physical activity, particularly isometric exercise, enhances executive functions such as inhibitory control [3].

IV. Conclusions

The exercise group showed significant improvements in reaction time and accuracy, especially in response inhibition tasks, while the control group exhibited slight cognitive declines. A strong correlation between heart rate changes and cognitive performance suggests physiological benefits of handgrip exercise. These findings support isometric training as an effective cognitive enhancement strategy.

Acknowledgment

The authors sincerely thank the research participants, FSR faculty members, and friends for their support.

References

[1] Brown, D. M. Y., & Bray, S. R. (2015). Isometric exercise and cognitive function: An investigation of acute dose–response effects during submaximal fatiguing contractions. Journal of Sports Sciences, 33(4), 357–364. https://doi.org/10.1080/02640414.2014.947524

[2] Davranche, K., & Audiffren, M. (2004). Facilitating effects of exercise on information processing. Journal of Sports Sciences, 22(5), 419-428. https://doi.org/10.1080/02640410410001675324

[3] Mason, H., & Lajoie, Y. (2013). The effects of exercise on reaction time. Journal of Aging and Physical Activity, 21(1), 89-96. https://doi.org/10.1123/japa.21.1.89

AI-DRIVEN PERSONALIZED ATHLETIC INTERVENTIONS: IMPACT OF THE NEXGEN PROMPT GENERATOR–CHATGPT ON DIETARY AND PHYSICAL TRAINING ADHERENCE AND ENDURANCE PERFORMANCE IN TEAM SPORT ATHLETES

Syaza Hazwani Manan, Azwa Suraya Mohd Dan, Razif Sazali, Yusandra Md Yusoff, Muhammad Zulqarnain, Amrun Haziq, & Adam Linoby*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: linoby@uitm.edu.my

Keywords: Artificial intelligence, Dietary adherence, Training compliance, Personalized training, Endurance athlete

I. Introduction

This study examines the integration of the novel prompt generator, NExGEN, and ChatGPT on dietary and physical training adherence among team sport athletes over three months [1]. The research also evaluates changes in intermittent endurance performance using the Yo-Yo Intermittent Recovery Test Level 1 [2]. The study explores AI-driven models for personalized interventions, targeting gaps in prompt quality and chatbot efficacy in athletic dietary and physical training recommendations.

II. Methods

The study recruited 21 team sport athletes (12 males, 9 females, aged 18–29 years) from Universiti Teknologi MARA. Participants completed a Physical Activity Readiness Questionnaire and baseline fitness tests, including the Yo-Yo Intermittent Recovery Test Level 1 [3]. Dietary adherence was scored weekly using Nutritionist Pro™, and NExGEN-ChatGPT tailored diet and exercise plans based on athlete-specific data, continuously refined using real-time feedback over three months.

III. Results and Discussion

A. Physical Training Adherence

Physical training adherence started strong (93 ± 3.5% in Week 1) but declined steadily, reaching 66 ± 5.9% by Week 12 (p<0.001). Early adherence highlighted the framework's initial success, but significant drops after Week 6 indicate challenges in maintaining engagement. Incorporating adaptive strategies may help sustain long-term compliance in physical training among athletes.

B. Dietary Adherence

Dietary adherence started moderately (40 ± 3.0 in Week 1) but declined steadily, reaching 24 ± 5.2 by Week 12 (p<0.001). Significant differences were observed across weeks, with adherence in Weeks 1–3 significantly higher than Weeks 10–12. Clearly, enhancing long-term engagement through personalized feedback and motivation strategies may help address these adherence challenges.

C. Yo-Yo Intermittent Recovery Test Level 1 Performance

Group mean pre-NExGEN-ChatGPT (Pre-NC) and post-NExGEN-ChatGPT (Post-NC) intervention changes in Yo-Yo Intermittent Recovery Test Level 1 (YoYo-IR1). The total length of distance covered in the YoYo-IR1 was significantly different in Pre-NC compared to Post-NC (Pre-NC: 1488 ± 178 vs. Post-NC: 1531 ± 150 m; p=0.009, mean change 95% CI = [13, 75]) (Figure 1). Further analysis revealed that the change (Δ) in distance covered between the Post-NC and Pre-NC conditions was positively correlated with physical training adherence (r^2 = -0.78, p=0.005).

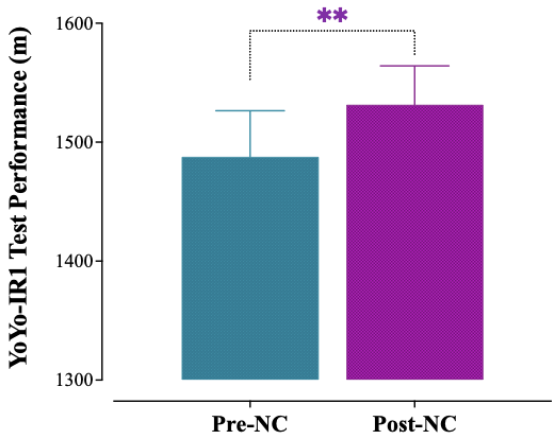


Fig. 1 Changes in Yo-Yo Intermittent Recovery Test Level 1 (YoYo-IR1) performance before (Pre-NC) and after (Post-NC) the NExGEN-ChatGPT intervention.

IV. Conclusions

In conclusion, the NExGEN-ChatGPT framework initially achieved high physical training and moderate dietary adherence among team sport athletes. Although adherence declined over three months, endurance improvements correlated with training consistency. Enhancing the AI model with adaptive and motivational strategies could sustain long-term engagement. These findings support the potential of AI-driven interventions as effective, personalized alternatives to traditional coaching.

S.H., Manan, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Acknowledgment

We thank Universiti Teknologi MARA Negeri Sembilan Branch student participants and colleagues (Adam Irman, Rose Mylia, Nur Athirah, Qautsar Malini and Nurain Munirah) for their invaluable support in data collection.

References

[1] Zhang, J., Oh, Y. J., Lange, P., Yu, Z., & Fukuoka, Y. (2020). Artificial Intelligence Chatbot Behavior Change Model for Designing Artificial Intelligence Chatbots to Promote Physical Activity and a Healthy Diet: Viewpoint. Journal of Medical Internet Research, 22(9), e22845.

[2] Zemková, E., & Pacholek, M. (2023). Performance in the yo-yo intermittent recovery test may improve with repeated trials: Does practice matter? Journal of Functional Morphology and Kinesiology, 8(2), 75. https://doi.org/10.3390/jfmk8020075

[3] Schmitz, B., Pfeifer, C., Kreitz, K., Borowski, M., Faldum, A., & Brand, S.-M. (2018a). The yo-yo intermittent tests: A systematic review and Structured Compendium of Test Results. Frontiers in Physiology, 9. https://doi.org/10.3389/fphys.2018.00870

COMPARATIVE ANALYSIS OF PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION STRETCHING VERSUS FOAM ROLLING ON POST-EXERCISE MUSCLE SORENESS AND FUNCTIONAL RECOVERY IN UNIVERSITY-LEVEL FUTSAL

Muhamad Hazrul Izam Azmi, Muhamad Noor Mohamed, Noor Azila Azreen, Muhamad Safiq, Nurul Ain Abu Kassim, & Mardiana Mazaulan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Proprioceptive Neuromuscular Facilitation, Foam Rolling, Muscle Soreness, Recovery Methods, Futsal Player

I. Introduction

Muscle soreness can hinder athletic performance and recovery. This study examines the effects of Proprioceptive Neuromuscular Facilitation (PNF) stretching and foam rolling on muscle soreness among UiTM Negeri Sembilan futsal players. By identifying and comparing these methods' effectiveness, this research addresses critical gaps in understanding safe, effective recovery strategies and provides insights into optimizing post-exercise care [1].

II. Methods

Ten UiTM Negeri Sembilan futsal players, engaging in regular physical activity, participated in this study. Participants were instructed in proper techniques for PNF stretching and foam rolling sessions in 15 minutes targeting quadriceps, hamstrings, adductors, glutes and gastrocnemius muscles. Muscle soreness was assessed using sit-to-stand tests (pain scale), knee extensor (pain scale), and knee flexion (range of motion) across the five-time frames: pre-training, immediately post-training, 24, 48, 72 hours post-training.

III. Results

All the results presented that there was a significant effect of PNF stretching and foam rolling group for all the biomarkers which are pain scale (PS) and range of motion (ROM) between the five-time series. Figure 1,2 and 3 showed the mean value of PNF and FR follow sit to stand and knee extensor (pain scale) and knee flexion (range of motion) that conclude was significantly different at pain scale measurement test and not significant at range of motion measurement test. This proposes that there was a change in all the biomarkers between the interventions across the five-time series.

TABLE I
P-value and Effect Sizes (Eta Square) for Performance Scores (Sit-to-stand, Knee Extensor and Knee Flexion)

Effect	*p*	Eta Square
Sit to Stand (PS)	<.001	0.793
Knee Extensor (PS)	<.001	0.768
Knee Flexion (ROM)	0.048	0.043

A. Sit to Stand

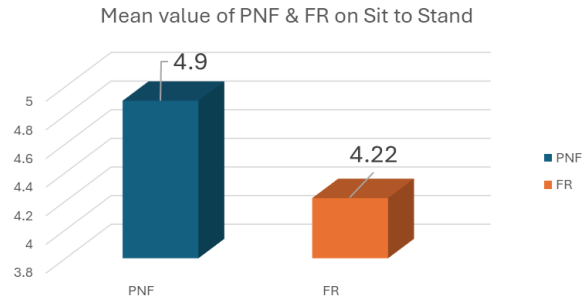


Fig. 1 Mean value of PNF and FR on Sit to Stand (STS)

B. Knee Extensor

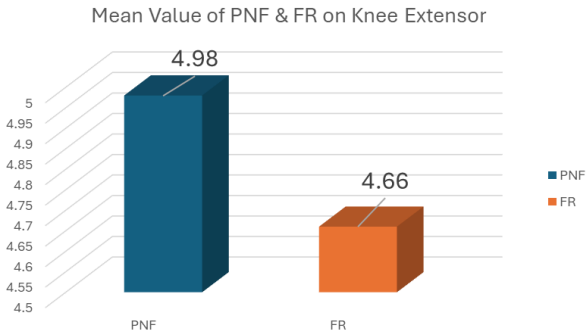


Fig. 2 Mean value of PNF and FR on Knee Extensor (KE)

C. Knee Flexion

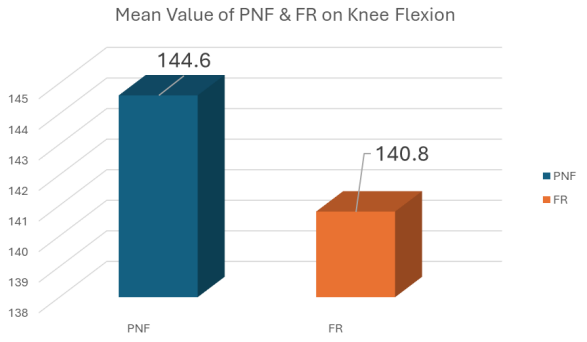


Fig. 3 Mean value of PNF and FR onKnee Flexion (KF)

Figure 1 shows each intervention has changed which was a decrement for a five-time series. From the mean (M) value, it showed that PNF group has the highest value for Sit to Stand which was 4.9 while FR group has the value of 4.22 respectively. Figure 2 demonstrates each intervention has changes which were a decrement of the knee extensor for a five-time period. From the mean (M) value, it showed that PNF group has the highest value for knee extensor which is 4.98 compared to FR has the value of 4.66. Figure 3 presents the mean value of Knee Flexion between PNF and FR. According to the data, it showed that PNF group has a highest value which is 144.6 compared to FR has the value 140.8. Based on the current study, it showed that there was a significant effect on both intervention towards sit to stand, knee extensor and knee flexion. However, the result also showed that there is a significant difference effect for both interventions at sit to stand and knee extensor only. It can be concluded that FR was the best intervention overall for the futsal players to reduce muscle soreness after a match.

IV. Discussion

The purpose of this study was to compare the effects of PNF and Foam Roller on muscle soreness among UiTM Negeri Sembilan futsal players. The PNF stretching and Foam Roller treatment are used to enhance recovery for the futsal players. These interventions have given the effects towards two biomarkers in the body, which are pain scale (PS), knee range of motion (ROM). These interventions gave a decrease in terms of PS and an increase in terms of ROM, which was based on the recovery time of the player.

Based on the results, PNF was found to be more effective in reducing pain. Previous studies demonstrate that PNF effectively modulates nociceptive input, leading to a decrease in pain sensitivity. Their findings attributed this to the activation of the Golgi tendon organs, which regulate muscle tension and promote relaxation [2]. PNF also can improve ROM through the activation of Golgi tendon organs, which help regulate muscle tension and prevent overstretching [3].

Furthermore, Foam Roller (FR) found that foam rolling on individuals with chronic and acute musculoskeletal pain and highlighted that while some trials reported significant pain reduction when foam rolling was combined with therapeutic exercise protocols, the overall evidence was inconclusive, indicating a need for further research [4]. FR demonstrates that significantly increases ROM without compromising muscle performance, suggesting its utility in athletic warm-up routines [5].

Additionally, both PNF and FR demonstrated significant effects on reducing pain and enhancing range of motion. Based on this study's finding, both interventions are equally effective and can be utilized as recovery strategies to reduce muscle soreness following matches.

V. Conclusion

Foam rolling proved more effective than PNF in reducing muscle soreness and enhancing recovery among UiTM Negeri Sembilan futsal players. Both interventions demonstrated significant improvements in pain scale and range of motion, but foam rolling consistently showed better results, making it a recommended post-match recovery method.

Acknowledgment

The authors would like to express sincere appreciation to those who have been directly and indirectly involved with this research project. Special thanks to colleagues; Husna, Afrina, Syasya and Syamimi for their assistance with data collection. The authors thank the UiTM Negeri Sembilan futsal players for their participation.

References

[1] Pérez-Bellmunt, A., Casasayas-Cos, O., Ragazzi, P., Rodríguez-Sanz, J., Hidalgo-García, C., Canet-Vintró, M., Caballero-Martínez, I., Pacheco, L., & López-de-Celis, C. (2023). Foam Rolling vs. Proprioceptive Neuromuscular Facilitation Stretching in the Hamstring Flexibility of Amateur Athletes: Control Trials. International Journal of Environmental Research and Public Health, 20(2), 1439.

[2] Kuru, T., Yeldan, İ., & Dereli, E. E. (2021). Effects of two different stretching techniques on proprioception and range of motion in healthy individuals with hamstring tightness: A randomized controlled trial. Journal of Comparative Effectiveness Research, 10(8), 623–634. https://doi.org/10.2217/cer-2021-0040

[3] Takasaki, H., Okubo, Y., & Okuyama, S. (2020). The effect of proprioceptive neuromuscular facilitation on joint position sense: A systematic review. Journal of Sport Rehabilitation, 29(4), 488–497. https://doi.org/10.1123/jsr.2018-0498

[4] Santos, I. S., Dibai-Filho, A. V., dos Santos, P. G., Arrais Júnior, J. D., de Oliveira, D. D., Rocha, D. S., & Fidelis-de-Paula-Gomes, C. A. (2024). Effects of foam roller on pain intensity in individuals with chronic and acute musculoskeletal pain: a systematic review of randomized trials. BMC Musculoskeletal Disorders, 25(1), 172. https://doi.org/10.1186/s12891-024-07276-6

[5] Skinner, B., Moss, R., & Hammond, L. (2020). A systematic review and meta-analysis of the effects of foam rolling on range of motion, recovery and markers of athletic performance. Journal of Bodywork and Movement Therapies, 24(3), 105–122. https://doi.org/10.1016/j.jbmt.2020.01.007

IMPACT OF PLAYING VIDEO GAME TOWARDS COGNITIVE CONTROL AND REACTION TIMES

Muhammad Ariff Munshir Mohd Pozi, Amelia Natasya Mohd Zaid, Muhammad Haiqal Zianuddin, Muhammad Hariz Mohd Nizam, Muhammad Isamuddin Zani, Noor Azila Azreen Md Radzi, & Muhamad Noor Mohamed*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: muhamad_noor@uitm.edu.my

Keywords: Video-game Players, Cognitive Control, Visuomotor Performance, Reaction Times, Simon-effect

I. Introduction

This study examines the impact of extensive video game playing on cognitive control and visuomotor performance. By analyzing reaction times and accuracy, it sheds light on the differences between video game players (VGPs) and non-video game players (non-VGPs), thus addressing gaps in understanding Simon-task performance and its implications for visuomotor and cognitive abilities [1].

II. Methods

A causal-comparative design was employed to analyze cognitive control and visuomotor performance in male participants (n = 30, 18–25 years) with normal vision and right-handedness. Using tools within Psytoolkit (PsychologyJobs.com), tests such as the Simon-task and Aim Trainer were utilized to assess reaction times and accuracy. Participants were grouped into VGPs (n = 15, 3+ days/week gaming) and NVGPs (n = 15, minimal gaming), matched for demographics, and tested under controlled conditions. Data was analyzed using the Mann-Whitney U Test with statistical significance set at (p<0.05) to seek any possible differences between groups.

III. Results and Discussion

A. Reaction Time

VGPs exhibited significantly faster reaction times than NVGPs, with averages of 441ms (congruent) and 458ms (incongruent), compared to 503ms and 897ms for NVGPs. The pronounced reduction in the Simon effect among VGPs highlights their superior cognitive control, as evidenced by the smaller disparity between congruent and incongruent trials. A Mann-Whitney U test revealed a significant difference in the reaction times levels of VGP (Md = 16, n = 13) and NVGP (Md = 385, n = 13), U = 0.001, z = -4.334, p<0.001, r = 1.20. The finding indicates that video games do affect the time taken for the brain to make decisions [2].

TABLE I
RANKS AND TEST STATISTICS OF REACTION TIMES

	Group	*n*	Rank	Sum
RT	NGV	13	7	91
	NGVP	13	20	260
	Total	26		

TABLE III
RANKS AND TEST STATISTICS OF REACTION TIMES

	RT
Mann-Whitney U	91
z	-4.33
Asymp. Sig. (2-tailed)	*< 0.001
Exact Sig. [2*(1-tailed Sig.)]	*< 0.001

*p < 0.001

B. Accuracy

VGPs also displayed notably higher accuracy rates, exceeding 90%, compared to NVGPs, who achieved only 60–75%. This substantial difference was consistent across all task types, emphasizing the enhanced visuomotor precision of VGPs and their ability to adapt to demanding cognitive tasks more effectively than NVGPs. A Mann-Whitney U test revealed a significant difference in the accuracy levels of VGP (Md = 92, n = 13) and NVGP (Md = 70, n = 13), U = 0.001, z = -4.345, p < 0.001, r = 1.20. Always tinkering with the cognitive effort sharpened the mind, thus reducing the tendency to get inaccurate results[1,2].

IV. Conclusions

This study reveals that extensive video game playing enhances cognitive control and visuomotor performance. VGPs exhibit faster reaction times, reduced Simon effect, and superior accuracy compared to NVGPs. These findings suggest that action video gaming could improve cognitive adaptability and visuomotor precision, with potential applications in training and skill development.

Acknowledgment

The author extends gratitude to the students of Universiti Teknologi MARA Seremban 3 for their participation and

special thanks to Universiti Teknologi MARA Seremban 3 for its support in conducting this study.

References

[1] Hutchinson, C. V., Barrett, D. J. K., Nitka, A., & Ray, S. (2016). Action video game training reduces the Simon Effect. *Psychonomic Bulletin & Review,* 23(2), 587–592.

[2] Mishra, J., Anguera, J. A., & Gazzaley, A. (2018). Video game training enhances cognitive control in older adults: A randomized, active-controlled trial. *Journal of Cognitive Enhancement*, 2(1), 1–12.

HEXAGONAL OBSTACLE DRILLS ENHANCE EXPLOSIVE POWER AND AGILITY IN MARTIAL ARTS ATHLETES

Muhamad Syafiq, Adam Linoby, Razif Sazali, Yusandra Md Yusoff, Amrun Haziq, & Muhammad Zulqarnain*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: zulqarnain9837@uitm.edu.my

Keywords: Hexagon Obstacle Drill, Martial arts performance, Power, Agility, Combat sports training, Athletic development

I. Introduction

This study investigates the effects of Hexagon Obstacle Drills (HOD) on explosive power and agility among martial arts student-athletes. Addressing gaps in combat sports research, it explores HOD's potential to enhance lateral movement, agility, and power development, offering tailored, evidence-based training insights [1].

II. Methods

This experimental study employed pre- and post-tests with 20 martial arts student-athletes divided into control and experimental groups. The HOD was implemented with intensity and complexity tailored to participants. Explosive power and agility were measured using Vertical Jump and T-Tests, respectively. Data were analyzed using independent T-tests to evaluate HOD's effectiveness on martial arts performance [2].

III. Results and Discussion

A. Power

The experimental group showed a significant improvement in vertical jump performance (3.30 ± 1.42, $p<0.001$) compared to the control group (0.80 ± 0.79). This indicates that the HOD effectively enhanced explosive power (Figure 1).

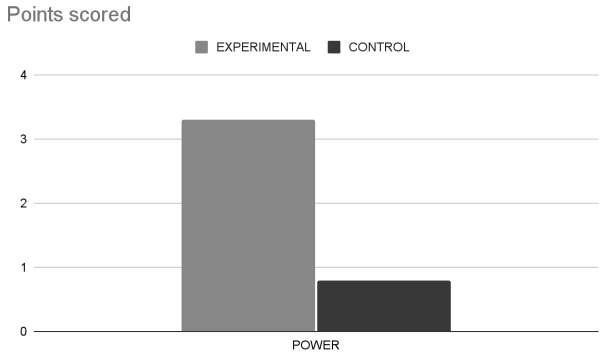


Fig. 1 Comparison of Power Scores Between Experimental and Control Groups.

B. Agility

The experimental group demonstrated a significant improvement in agility (mean change score = -1.3760, SD = 0.96189, p = 0.001) compared to the control group (mean change score = 0.1120, SD = 0.57677). These findings confirm that HOD training resulted in meaningful improvements in agility (Figure 2).

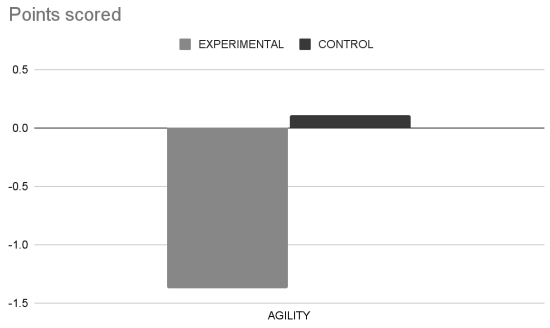


Fig. 2 Comparison of Agility Scores Between Experimental and Control Groups.

IV. Conclusions

Hexagonal Obstacle Drills (HOD) significantly enhanced explosive power and agility among martial arts student-athletes. The results highlight its effectiveness as a sport-specific training method, emphasizing its potential for optimizing key athletic attributes in martial arts.

Acknowledgment

The authors gratefully acknowledge martial arts student-athletes of UiTM Seremban 3, and colleagues; Amirah, Dina, and Ameer for their support.

References

[1] Saputra, A. A., & Muzaffar, A. (2019). The Effects of Plyometric Training and Age on The Agility of Silat Fighters. Advances in Social Science, Education and Humanities Research, 278, 443-446..

[2] Milanović, Z., Sporiš, G., Trajković, N., James, N., & Šamija, K. (2013). The relationship between agility, linear sprinting, and vertical jump performance in young and professional soccer players. Journal of Strength and Conditioning Research, 27(12), 3497-3503.

IMPACT OF ANTİ-SLİP SOCKS ON AGİLİTY AND SPEED PERFORMANCE AMONG MALE FUTSAL PLAYERS

Muhammad Atif Azamuddin Mohd Azmi[1], Raja Nurul Jannat Raja Hussain[1], Maisarah Shari[2], Muhamad Noor Mohamed[1], Mardiana Mazaulan[1], Muhamad Safiq Saiful Annur[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], & Noor Azila Azreen Md Radzi[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: azila_azreen712@uitm.edu.my

Keywords: Agility performance, Speed performance, Anti-slip socks, Futsal athletes, Sports footwear

I. Introduction

Footwear and socks play a crucial role in sports performance, particularly in agility and speed. Given the high incidence of ankle sprains in futsal, exploring ways to enhance stability is essential [1]. This study compares the effects of anti-slip socks and standard socks on agility and speed among UiTM Negeri Sembilan futsal players to determine their impact on performance.

II. Methods

This experimental study involved 24 male UiTM Negeri Sembilan futsal players (aged 19–24). Speed and agility were assessed using the 30-meter sprint and Illinois agility test. Each participant completed both tests wearing standard socks first, with a 10-minute rest between trials. After a one-day recovery, the tests were repeated with anti-slip socks to compare performance differences.

III. Results and Discussion

An analysis of Paired sample t-test revealed that agility performance improved significantly with anti-slip socks (M = 14.21s) compared to standard socks (M = 18.55s, $p<0.05$). The superior grip likely reduced slipping, enabling quicker direction changes. Enhanced foot stability may have improved control, leading to better agility [2]. Psychological confidence in traction support might have also influenced performance, reinforcing the advantage of anti-slip socks.

On the other hand, speed performance was also significantly better with anti-slip socks (M = 3.05s) than standard socks (M = 3.67s, $p<0.05$). Reduced slippage likely improved force application, enabling greater acceleration. The increased stability may have allowed players to generate more efficient propulsion. The strong statistical significance confirms anti-slip socks' effectiveness in enhancing sprint speed, supporting their potential as a performance-enhancing gear for futsal athletes [3].

TABLE I
Comparison Between Standard Socks and Grip Socks on Agility and Speed Among UiTM Futsal Players.

Variable		Mean	*N*	SD	*t*	Sig.
Agility	Standard Sock	0.060	24	0.126	15.7	0.001
	Anti-slip Sock					
Speed	Standard Sock	4.338	24	1.336	23.5	0.001
	Anti-slip Sock					

*$p<0.05$

IV. Conclusions

Anti-slip socks significantly enhance agility and speed performance among futsal players, likely due to improved grip and stability. These findings suggest that anti-slip socks can be a beneficial performance aid. Future research should explore their long-term effects and potential injury prevention benefits to further validate their advantages.

Acknowledgment

The authors sincerely thank the futsal athletes for their participation and dedication. Special appreciation goes to Madam Azila for her invaluable guidance and support throughout the research process.

References

[1] Friedl, D., Federolf, P., & von Tscharner, V. (2022). Grip socks improve slalom course performance and reduce in-shoe foot displacement during change of direction movements. Journal of Sports Sciences, 40(14), 1580–1587.

[2] de Villiers, J. E., & Venter, R. E. (2014). Barefoot training improved ankle stability and agility in netball players. Journal of Sports Science and Medicine, 9(3), 485–491.

[3] Marencakova, J., Maly, T., Sugimoto, D., & Zahalka, F. (2022). Association between foot posture and agility in amateur soccer players. International Journal of Kinesiology and Sports Science, 10(4), 1–7.

THE ACUTE EFFECTS OF BLOOD FLOW RESTRICTION TRAINING ON PERCEIVED EXERTION AND SPRINT PERFORMANCE IN FUTSAL ATHLETES

Nur Syafiqah Azwarul Nizam, & Nurul Ain Abu Kasim*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: nurulain755@uitm.edu.my

Keywords: Blood flow restriction, Repeated sprint, Futsal athletes, Perceived exertion, Speed consistency

I. Introduction

Blood Flow Restriction (BFR) training offers a low-load alternative to high-intensity exercises, potentially enhancing athletic performance while minimizing overuse injuries [1,2]. Despite its growing popularity, its impact on speed and rated perceived exertion (RPE) in high-intensity sports like futsal remains underexplored [3]. This study investigates the acute effects of BFR on RPE and sprint performance, addressing gaps in understanding its efficacy for intermittent sports [4].

II. Methods

Twenty healthy male futsal athletes participated, free of injuries or chronic diseases. Two trials were conducted: one with BFR applied during Yo-Yo IR1 training and the other as a control without BFR. After training, athletes performed repeated sprint tests. Speed was measured using Smartspeed timing gates, and RPE was assessed with the Borg scale [5]. Results were statistically analyzed.

III. Results and Discussion

A. Rated Perceived Exertion

RPE was significantly higher during BFR training (13.4 ± 2.21) compared to non-BFR training (8.45 ± 1.05). This indicates that participants perceived greater exertion under BFR conditions, highlighting the physiological strain imposed by BFR during high-intensity activities (Table 1)..

B. Speed

Sprint speeds were significantly in the BFR condition (4.39 ± 0.30) compared to the non-BFR condition (4.93 ± 0.51), as demonstrated by an independent sample t-test. This finding indicates that BFR training is more effective for enhancing sprint performance, with non-BFR potentially impairing speed during high-intensity intermittent activities (Table 1).

TABLE I
Independent Samples t-test of RPE and Average Speed of BFR and Non-BFR Group

Variables	Group	N	Mean (SD)	*t*-value	df	*p*-value
RPE	BFR	20	13.4 (2.21)	9.05	38.0	0 .001
	Non-BFR	20	8.45 (1.05)			
Average speed (m)	BFR	20	4.39 (0.302)	-4.06	38.0	0 .001
	Non-BFR	20	4.93 (0.511)			

IV. Conclusions

This study highlights that BFR training effectively enhances sprint performance while increasing perceived exertion during high-intensity activities. BFR offers a promising alternative to traditional training methods, optimizing speed performance for futsal athletes. These findings support the utility of BFR in improving performance metrics in intermittent, high-intensity sports like futsal.

Acknowledgment

The authors thank the futsal athletes from Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for their participation and Wan Muqhriz Wan Yunus for assisting with data collection.

References

[1] Loenneke, J. P.,et.al.. (2012). Potential safety issues with blood flow restriction training. Scandinavian Journal of Medicine & Science in Sports, 22(5), 511–518. https://doi.org/10.1111/j.1600-0838.2012.01471.x.

[2] Karabulut, M.et.al (2010). The effects of low-intensity resistance training with vascular restriction on leg muscle strength in older men. European Journal of Applied Physiology, 108(1), 147–155. https://doi.org/10.1007/s00421-009-1289-5.

[3] Scott, B. R.,et.al. (2015). Exercise with blood flow restriction: An updated evidence-based approach for enhanced muscular development. Sports Medicine, 45(3), 313–325. https://doi.org/10.1007/s40279-014-0288-1.

[4] Counts, B. R.,et.al. (2016). Influence of relative blood flow restriction pressure on muscle activation and hypertrophy. Physiology International, 103(4), 462–472. https://doi.org/10.1556/2060.103.2016.4.5.

[5] Borg, G. A. (1982). Psychophysical bases of perceived exertion. Medicine & Science in Sports & Exercise, 14(5), 377–381. https://doi.org/10.1249/00005768-198205000-00012.

N.S.A., Nizam, & N.A.A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE EFFECTS OF INCORPORATING A HOCKEY STICK IN SPEED, AGILITY, AND QUICKNESS (SAQ) TRAINING ON THE SPEED AND AGILITY OF YOUTH FIELD HOCKEY PLAYERS

Arif Iskandar Azhar[1], Muhamad Noor Mohamed[1], Noor Azila Azreen Md Radzi[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Raja Nurul Jannat Raja Hussain[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: nuruljannat@uitm.edu.my

Keywords: Hockey stick training, SAQ training, Field hockey performance. Speed and agility, Youth Athletes

I. Introduction

This study investigates the effects of incorporating a hockey stick into Speed, Agility, and Quickness (SAQ) training for youth field hockey players. By addressing the lack of sport-specific adaptations in conventional training [1], it aims to improve speed and agility, offering evidence-based insights for enhancing performance through a novel Hockey Stick-enhanced SAQ (H-SAQ) program.

II. Methods

Sixteen male youth field hockey players (ages 13–17) from Bukit Aman, Kuala Lumpur were divided into stick use (SU) and no stick (NS). A six-week Hockey Stick-Enhanced SAQ program with two 45-minute sessions per week featured drills like sprints, lateral jumps, and shuttles. Speed and agility were assessed pre- and post-training using the PSS-YP, anthropometric measures, 20-meter sprint, 20-meter sprint with a ball, and Illinois Agility Test.

III. Results and Discussion

The results revealed significant changes across all performance metrics in both the SU and NS groups, emphasizing the efficacy of SAQ training. Specifically, speed decreased in the SU group (0.337–0.271 sec) but increased in the NS group (0.328–0.190 sec). In dribble speed, the SU group exhibited a reduction (0.529–0.337 sec), whereas the NS group showed an increase (0.163–0.168 sec).

Agility improved in the SU group demonstrating a marked reduction in (1.19–0.871 sec), while the NS group displayed an increase in time (0.693–0.871 sec). These findings suggest that incorporating sport-specific elements, like a hockey stick, enhances training specificity and agility, although further investigation is needed to explore its differential effects on speed and dribbling performance (Figure 1).

The integration of a hockey stick in SAQ training significantly enhanced speed and agility in youth field hockey players. This improvement suggests that sport-specific equipment optimizes neuromuscular adaptation, enhancing coordination and movement efficiency [2]. The use of a hockey stick likely improves proprioception and task-specific motor skills, leading to better agility performance [3]. These findings align with research indicating that training specificity enhances skill transfer to competitive play [4]. Further research should explore long-term adaptations and optimal training protocols.

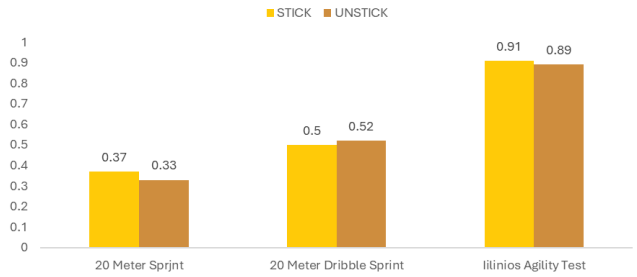


Fig. 1 Different in SAQ test pre- and post-intervention for Stick and Unstick groups (**significant difference between pre and post $p<0.001$; *significant difference between pre and post $p< 0.05$).

IV. Conclusions

The incorporation of a hockey stick into SAQ training significantly improved speed and agility in youth field hockey players. This sport-specific modification demonstrated superior efficacy over conventional methods, providing evidence for integrating game-relevant elements into training programs. Findings emphasize the potential of SAQ training to optimize field hockey performance and contribute to advancing evidence-based training protocols for youth athletes.

Acknowledgment

The authors thank the youth athletes from 4 State Players Hockey Club, coaches, and 4 State Hockey Club for their support and contributions to this study.

References

[1] Sheppard, J. M., & Young, W. B. (2006). Agility literature review: Classifications, training, and testing. *Journal of Sports Sciences.*

[2] Young, W. B., Dawson, B., & Henry, G. J. (2015). Agility and change-of-direction speed are independent skills: Implications for training for agility in invasion sports. International Journal of Sports Science & Coaching, 10(1), 159–169
[3] Sheppard, J. M., & Young, W. B. (2006). Agility literature review: Classifications, training, and testing. Journal of Sports Sciences, 24(9), 919–932.
[4] Williams, A. M., & Hodges, N. J. (2005). Practice, instruction and skill acquisition in soccer: Challenging tradition. Journal of Sports Sciences, 23(6), 637–650.

INVESTIGATING THE RELATIONSHIP BETWEEN PHYSICAL EXERCISE AND SELF-ESTEEM AMONG COLLEGE STUDENTS IN UITM SEREMBAN 3

Izzatul Husna Husin, & Wahidah Tumijan*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: wahidah06@uitm.edu.my

Keywords: Physical exercise, College students, Self-esteem,Mental health, Life style

I. Introduction

This study explores the relationship between physical exercise and self-esteem among college students at UiTM Seremban 3. It highlights the importance of physical exercise in overall health [1]. Many college students struggle to balance academics and self-care, leading to reduced physical exercise. Understanding the link between exercise and self-esteem can provide insights to improve students' mental health. Physical exercise reduces stress levels, yet students are not exercising regularly during their leisure time. While regular physical activity reduces social isolation and loneliness by creating opportunities for social contact, there is a lack of studies on university students [2]. This gap highlights the need to explore how physical exercise influences self-esteem in this population.

II. Methods

This study involved 300 college students from UiTM Seremban 3, selected through random sampling. Data collection utilized questionnaires, including the Physical Exercise rating scale used the Physical Activity Rating Scale (PARS-3) revised by Liang [3] and Rosenberg Self-Esteem Scale (SES) by Morris Rosenberg [4]. Participants completed these in a controlled setting, Pearson correlation analysed the relationship between physical exercise and self-esteem.

III. Results and Discussion

A. Physical Exercise

Physical exercise among students showed varying frequencies, durations, and intensities. The result showed 50.3% reported a low level of physical exercise, making it the most common category. Meanwhile, 22.7% of students engaged in a moderate level of exercise, and 27.0% reported a high level of physical exercise. These findings suggest that a significant proportion of students have low physical activity levels. Evidence indicates that more individuals rarely participate in sports than those who do so regularly. This trend may be due to university students' demanding schedules and long class hours, which contribute to fatigue and limit time for regular physical activity [5].

B. Self-esteem

Self-esteem scores, measured on a 10-item scale. The result showed the majority (77.0%) reported a moderate level of self-esteem, while 20.3% indicated a low level of self-esteem. Only a small proportion (2.7%) engaged in a high level of self-esteem. These findings highlight that most college students maintain a moderate self-esteem level, with fewer individuals participating in low or high levels of self-esteem. Research suggests that students with high self-esteem tend to achieve better academic outcomes, as a certain level of self-esteem is essential for persistence and success [6].

C. Relationship Between Physical Exercise and Self-Esteem

A significant negative correlation was found between physical exercise and self-esteem. This correlation is statistically significant (p<0.001) at significance level. The findings of this study suggest that physical exercise does not effectively enhance self-esteem among university students. Therefore, it may not be a reliable method for fostering positive self-perception or cognitive confidence [7].

TABLE I
Correlation analysis of physical exercise and self-esteem among students in UiTM Seremban 3

Variables	Mean ± SD	Pearson's (r)	p-value
Physical Exercise (PE)	30.1 ± 31.4	-	-
Self-esteem (AE)	23.3 ± 3.94	-0.231	<.001

IV. Conclusions

This study highlights the significant relationship between physical exercise and self-esteem among UiTM Seremban 3 college students. Findings emphasize the need to promote physical exercise to enhance self-esteem. These insights provide a foundation for interventions in higher education to foster healthier lifestyles and improved confidence among students.

Acknowledgment

The authors thank Universiti Teknologi MARA (UiTM) participants for supporting this study. Special thanks to Hafiz, Hairi and Liyana for their assistance in data collection.

References

[1] World Health Organization. (2024). Physical Activity. World Health Organization.https://www.who.int/news-room/fact-sheets/detail/physical-activity

I.H., Husin, & W., Tumijan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[2] Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2022). Academic stress and mental well-being in college students. Frontiers in Psychology,13, 886344.
[3] Rosenberg, M. Rosenberg self-esteem scale (RSE). Accept. Commit. Therapy. Meas. Package 1965, 61, 18
[4] KHashimoto KH, ハシモト キミオ. The relationship between exercise and mental health: a life stage perspective. J. Health Sci. 2005;27:27–32.
[5] Ferreira Silva, R. M., Mendonça, C. R., Azevedo, V. D., Raoof Memon, A., Noll, P. R. E. S., & Noll, M. (2022). Barriers to high school and university students' physical activity:
[6] Orth, U., & Robins, R. W. (2022). Is High Self-Esteem Beneficial? Revisiting a Classic Question. American Psychologist, 77(1), 5–17.
[7] Zhou, Z., Guo, K., Guo, S., & Chen, L. (2024). Relationship between physical exercise and college students' social adaptation: the chain mediating role of self-esteem and peer attachment.

I.H., Husin, & W., Tumijan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXAMINING GENDER, AGE, AND BODY MASS INDEX AS DETERMINANTS OF MUSCULAR STRENGTH AND FLEXIBILITY IN YOUNG ADULTS

Muhammad Iqbal Husaini, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: yusandra@uitm.edu.my

Keywords: Hand-grip strength, Flexibility, Early adulthood, Physical fitness, Correlation analysis

I. Introduction

This study explores the correlation between hand-grip strength and flexibility in early adulthood. By addressing methodological gaps from prior research demographic limitations, the study aims to provide robust evidence on the relationship between these fitness components [1]. The findings could offer broader insights into their applicability as reliable predictors of physical fitness in diverse early adult populations.

II. Methods

A convenience sample of 23 adults (aged 26–39, both genders) participated. Hand-grip strength was measured using a Camry dynamometer (model EH101) [2], and flexibility was assessed using the Sit-and-Reach Box. Participants performed three trials for each test, with the highest values recorded. Statistical analyses included descriptive statistics, Spearman's correlation, and regression models using Jamovi, with significance set at $p<0.05$ to evaluate strength-flexibility relationships [3].

III. Results and Discussion

A. Hand-grip strength

The mean hand-grip strength was 35.4 ± 9.91. Significant differences were observed between males and females, with age and BMI showing a notable influence on strength outcomes. These findings emphasize demographic and physiological variations in early adulthood.

B. Flexibility

Flexibility scores averaged 10.4 ± 3.11, with significant gender differences. Age and BMI also influenced flexibility, highlighting their importance in fitness assessment during early adulthood

C. Association between hand-grip strength and flexibility.

A weak negative correlation (r = -0.118) was found between hand-grip strength and flexibility. Gender influenced this relationship, but regression analysis indicated that hand-grip strength was not a significant predictor of flexibility.

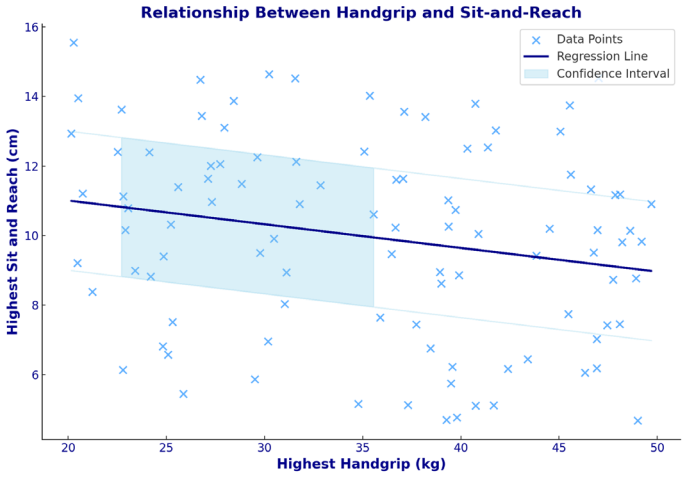


Fig. 1 Correlation between hand grip strength and flexibility among early adulthood.

IV. Conclusions

This study highlights significant gender differences and the effects of age and BMI on hand-grip strength and flexibility in early adulthood. Despite a weak negative correlation, hand-grip strength was not a significant predictor of flexibility. These findings enhance understanding of physical fitness components and their relationships in diverse populations.

Acknowledgment

The authors thank the students of Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for their participation and support in this research.Special thanks to Fardeen Aqasha, and Wan Mohd Syafiq for their assistance in data collection.

References

[1] Kim, M., & Kim, H. (2022). Usefulness of hand grip strength to estimate other physical fitness components in young adults. Scientific Reports, 12, 22477. https://doi.org/10.1038/s41598-022-22477-6.

[2] Lee, S. Y., & Kim, Y. S. (2024). Association of Hand Grip Strength and Physical Fitness Parameters in Young Adults. Asia Pacific Journal of Public Health, 36(5), 123-130. https://doi.org/10.1177/10105395241275223.

[3] Arcía-Hermoso, A., Ramírez-Vélez, R., & Izquierdo, M. (2024). Hand grip strength test is not an indicator of flexibility performance among teenagers. Spanish Journal of Sports Medicine, 76(1), 45-50. https://doi.org/10.5812/sjsp.12345

ENHANCING AI-DRIVEN PERSONALIZED EXERCISE AND NUTRITION PLANNING FOR ELDERLY THROUGH PROMPT REFINEMENT AND EXPERT CONSENSUS

Nur Athirah Rosli, Azwa Suraya Mohd Dan, Razif Sazali, Yusandra Md Yusoff, Muhammad Zulqarnain, Amrun Haziq, & Adam Linoby*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: linoby@uitm.edu.my

Keywords: Artificial intelligence, Personalized training, Nutrition planning, Fuzzy Delphi method, Prompt engineering

I. Introduction

This study aims to refine the NExGEN Prompt Generator–ChatGPT Framework for personalized exercise and nutrition planning tailored to Malaysia's elderly population using the Fuzzy Delphi Method [1]. Addressing gaps in AI-driven health interventions, the research focuses on enhancing prompt accuracy, scalability, and adaptability to meet elderly-specific health needs effectively.

II. Methods

A convenience sample of 18 elderly (>60 yrs old) Malaysians. A purposive sample of 21 experts was recruited to evaluate the NExGEN framework using a custom-designed questionnaire based on personalized nutrition and exercise constructs. The Fuzzy Delphi Method was employed for consensus-building, with responses analyzed using Triangular Fuzzy Numbers and defuzzification techniques to assess expert agreement [2]. Expert feedback, collected through Likert scales and open-ended responses, informed iterative framework improvements.

III. Results and Discussion

A. Results Analysis on Experts' Views via Fuzzy Delphi

Experts rated the NExGEN framework highly, with all criteria exceeding 75% consensus and meeting thresholds ($d < 0.2$, α-cut > 0.5) [3]. Key improvements included specialized, user-centric prompts for personalized weight management, enhancing AI precision and practicality. Constructs like physical activity metrics, technology integration, and tracking systems achieved over 90% agreement. Defuzzification confirmed the relevance of all elements, ensuring the framework's robustness and expert-aligned customization (Table 1).

B. Prompt Analysis and Systematic Refinement Process

Using the Fuzzy Delphi method has optimized NExGEN-ChatGPT prompts for personalized exercise and nutrition planning in elderly. Aligned with expert consensus, these refined prompts transform broad questions into focused, user-centric queries that yield precise, actionable AI responses. This personalization, seamlessly integrated into elderly' exercise activities and dietary preferences, delivers practical guidance that boosts engagement and aligns with scientifically grounded recommendations.

Applying the Fuzzy Delphi method has significantly improved the NExGEN Prompt Generation Framework, strengthening personalized AI-driven dietary and physical training recommendations for elderly.

TABLE I
Summary of NExGEN-ChatGPT Fuzzy Delphi Analysis and Refinement

Element	Initial Prompt	Sample Refined Prompt	Change Justification
Desired Outcome	"Set a fitness or health goal."	"Improve cardiovascular health, increase muscle strength, or enhance mobility tailored to elderly needs."	67% ± 9%
Target Changes	"Decide on your weight loss or fitness target."	"Aim to reduce 6 kg or <5% of current weight based on health conditions, or not applicable if unsuitable."	69% ± 10%
Timeline	"Choose a time frame to achieve your goals."	"Set a timeline of 3 months, 6 months, or 1 year based on personal capacity and health status."	71% ± 7%
Start Date	"Pick a start date for your program."	"Commence the exercise and dietary program on 15/01/2024."	75% ± 8%
Flexibility in Progress	"Adjust your plans if things change."	"Indicate willingness to adjust your timeline if progress is slower or faster than expected (Yes/No)."	77% ± 9%
Motivation	"State your reason for pursuing this goal."	"Focus on improving health, enhancing appearance, or following a doctor's recommendation."	77% ± 5%

N.A., Rosli, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

The refined NExGEN framework demonstrates high expert consensus and effectiveness in personalized exercise and nutrition planning for elderly. Improved user-centric prompts and robust Fuzzy Delphi-based validation ensure precision, practicality, and broad applicability, establishing the framework as a scalable, cost-effective alternative to traditional personalized coaching models.

Acknowledgment

The authors thank the Home Care Centre (Seremban), the Elderly Care Centre (Seremban), and all participants for supporting this study. Special thanks to Adam Irman, Qautsar Malini, Rose Mylia, and Syaza Hazwani for their assistance in data collection.

References

[1] Lim, S. L., Tan, K. M., & Ng, P. L. (2024). Enhancing Elderly Health in Malaysia through AI-Personalized Exercise and Nutrition Plans. International Journal of Environmental Research and Public Health, 21(2), 456.

[2] Habibi, A., Jahantigh, F. F., & Sarafrazi, A. (2015). Fuzzy Delphi Technique for Forecasting and Screening Items. Asian Journal of Research in Business Economics and Management, 5(2), 130–143.

[3] Krewski, D., Westphal, M., Al-Zoughool, M., Croteau, M. C., & Andersen, M. E. (2014). A framework for the next generation of risk science. Environmental Health Perspectives, 122(8), 796–805

UNRAVELING THE CONNECTION BETWEEN INTERNET ADDICTION AND MENTAL HEALTH AMONG STUDENT-ATHLETES POPULATION

Nurmisya Elyanie Md Daud, & Hasmiza Abdul Majeed*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: hasmiza@uitm.edu.my

Keywords: Internet addiction, Mental health, Depression, Anxiety, Stress, Student-athletes

I. Introduction

This study investigates the link between internet addiction and mental health among student-athletes from UiTM Negeri Sembilan. There is limited research exploring this relationship in athletic populations and there is a need to examine these variables [1]. Hence, the present study aims to address this gap by identifying internet addiction levels, mental health status, and their interrelationship. Findings will contribute to understanding how digital behavior links with mental health within this unique population, offering practical implications for managing internet use among student-athletes.

II. Methods

A quantitative research design was employed to examine internet addiction and mental health among 93 student-athletes at UiTM Negeri Sembilan. Data were collected via an online survey distributed through Google Forms. The present study used the Internet Addiction Test (IAT) [2] to measure the level of Internet addiction of the respondents, and the level of mental health was assessed using the Depression, Anxiety, and Stress Scale (DASS-21) [3]. These instruments were used to measure the studied variables among the target population. Pearson correlation analysis was conducted to determine the relationship between internet addiction and mental health.

III. Results and Discussion

A. Level of Internet Addiction

The internet addiction score among student-athletes was at a mild addiction level (45.5 ± 14.6). While internet usage is noticeable, it remains manageable, potentially due to the athletes' structured routines. However, the high variability in scores highlights a subgroup with higher dependency, warranting further investigation into individual differences.

B. Level of Mental Health

Mental health findings revealed moderate depression (14.1 ± 10.4), severe anxiety (16.4 ± 9.9), and mild stress (16.2 ± 9.51). Anxiety emerged as the most significant concern, surpassing depression and stress. These results suggest the need for targeted interventions addressing anxiety, which may impact academic and athletic performance.

C. Relationship between internet addiction and mental health

A significant positive relationship was identified between internet addiction and mental health (depression: $r = 0.497$, anxiety: $r = 0.480$, stress: $r = 0.476$; $p<0.001$). These findings indicate that higher internet addiction correlates with increased mental health levels, underscoring the need for strategies to balance internet use and mitigate its effects.

IV. Conclusions

This study highlights the link between internet addiction behavior and mental health levels, particularly among student-athletes. A significant relationship found between internet addiction and mental health variables underscores the need for balanced internet usage strategies and targeted mental health interventions to support student-athletes' well-being and overall performance.

Acknowledgment

The authors sincerely thank the student-athletes of Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia for their invaluable support.

References

[1] M. Çelik and N. Özgür., "The relationship between depression, healthy lifestyle behaviors, and internet addiction: a cross-sectional study of the athlete university students in Turkey," ResearchGate, 2023.
[2] Samaha, A. A., Fawaz, M., Yahfoufi, N. E., Gebbawi, M., Abdallah, H., Baydoun, S. A., Ghaddar, A., & Eid, A. H., Assessing the psychometric properties of the Internet Addiction Test (IAT) among Lebanese college students. Frontiers in Public Health, 6, 2018.
[3] Lovibond, S.H. & Lovibond, P.F., Manual for the Depression Anxiety & Stress Scales. (2nd Ed.)Sydney: Psychology Foundation,1995 .

N.E.M., Daud, & H.A., Majeed, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

COMPARATIVE EFFICACY OF HOT AND COLD-WATER IMMERSION THERAPIES ON POST-MATCH RECOVERY IN FUTSAL PLAYERS: A QUASI-EXPERIMENTAL STUDY OF MUSCLE SORENESS, STRENGTH, AND KNEE RANGE OF MOTION

Nur Syasya Mohammad Effendy[1], Muhamad Noor Mohamed[1], Noor Azila Azreen[1], Raja Nurul Jannat Raja Hussein[1], Muhamad Aizzat Adnan[1], Maisharah Shaari[2], & Mardiana Mazaulan[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Muscle soreness, Hot water immersion, Cold water immersion, Post-exercise recovery, Futsal players

I. Introduction

Hot and cold-water immersion therapies are popular recovery strategies for athletes [1]. This study investigates their effects on muscle soreness among futsal players, aiming to clarify their comparative benefits and mechanisms for optimizing post-exercise recovery [2].

II. Methods

This quasi-experimental study involves 18–25-year-old male futsal players from UiTM Negeri Sembilan, who are healthy and injury-free [3]. Baseline assessments include muscle soreness using the Visual Analog Scale (VAS) [4] and goniometer [5], sit-to-stand performance [6], knee extensor strength [7], and knee range of motion (ROM) [8]. After a 90-minute match, players undergo either hot (38–40°C) or cold-water immersion (11–15°C) for 15 minutes [9]. Muscle soreness and ROM are evaluated immediately post-intervention and at 24-, 48-, and 72-hours using repeated measures ANOVA.

III. Results and Discussion

A. Sit to stand

A repeated measures ANOVA found a significant effect of treatments on pain levels ($df = 4$, $p<0.001$) but no significant interaction effect ($df = 4,4$, $p = 0.543$) with a small effect size [3]. Comparison of treatments showed no significant difference in pain reduction ($F = 0.329$, $p = 0.573$), suggesting variability was due to chance, rejecting the null hypothesis for CWI and HWI effects on Sit-to-Stand performance [10].

B. Knee extensor

Similarly, the pain scale for knee extensor showed a significant effect of the pain scale ($df = 4$, $p<0.001$), indicating differences in pain levels across conditions [3]. However, the interaction between pain scale and treatment was not significant ($df = 4,4$, $p = 0.738$), nor was the comparison between treatments ($F = 0.095$, $p = 0.762$), with a small effect size [11]. These results suggest pain reduction variability is not due to the treatments but likely due to chance or other factors.

C. Knee Range of Motion

A repeated measures ANOVA showed a significant main effect of ROM ($df = 4$, $p<0.001$) and significant interaction with treatment ($df = 4$, $p = 0.002$), indicating varying treatment impacts on ROM with a small to moderate effect size [3]. However, another analysis found no significant main effect ($F = 1.84$, $p = 0.192$) or interaction, suggesting inconsistent results and requiring further investigation [11].

D. Comparing HWI and CWI Effects

CWI was more effective in reducing muscle soreness, with significant differences in ROM observed ($p<0.001$) [3]. The interaction effect was also significant ($p = 0.002$), indicating treatment-specific impacts [12]. Despite these findings, variability in ROM scores across conditions ($p = 0.192$) suggests differential impacts that require further exploration [13].

TABLE I
P-Value And Effect Size (Eta Square) Performance Scores (Sit to Stand, Knee Extensor) and Knee Range of Motion

Effect	*p*	Eta Square
PS (Sit to Stand)	<0.001	0.834
PS (Knee extensor)	<0.001	0.787
ROM	<0.001	0.141

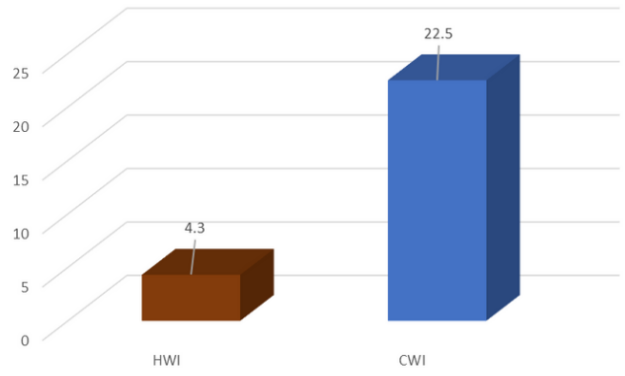


Fig. 1 Mean value of HWI and CWI on Sit to Stand

Figure 1 shows the mean Sit-to-Stand performance for HWI and CWI, with CWI (22.5) having a significantly greater effect than HWI (4.3). The large difference suggests that CWI enhances performance more effectively. The null hypothesis, which assumes no significant difference between HWI and CWI was rejected.

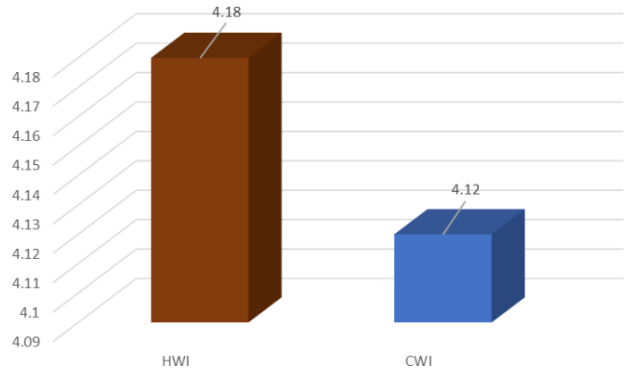


Fig. 2 A bar shows the mean value of HWI and CWI on Knee extensor

Figure 2 shows the mean value of HWI and CWI on PS Knee Extensor, with HWI (4.18) having a greater effect than CWI (4.12). The difference suggests that HWI may have a slightly higher impact on knee extensor performance compared to CWI. The null hypothesis, which assumes no significant difference between HWI and CWI, was rejected.

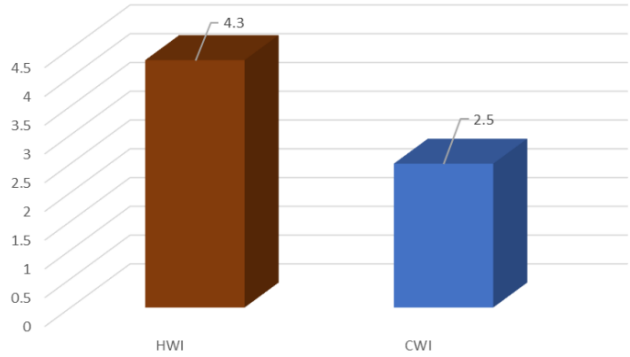


Fig. 3 A bar shows the mean value of HWI and CWI on Knee ROM

Figure 3 shows the mean knee ROM for HWI and CWI, with HWI (4.3) having a significantly greater effect than CWI (2.5). The large difference suggests that HWI enhances knee ROM more effectively. The null hypothesis, which assumes no significant difference between HWI and CWI, was rejected.

IV. Conclusions

Both HWI and CWI significantly reduced muscle soreness among futsal players, with CWI demonstrating slightly greater effectiveness in enhancing recovery. However, differences in the ROM outcomes suggest treatment-specific impacts requiring further investigation. These findings highlight the importance of tailored recovery strategies for optimizing post-exercise recovery in athletic contexts.

Acknowledgment

The authors sincerely thank the futsal players from UiTM Negeri Sembilan for their participation and colleagues for their help, guidance, and support.

References

[1] Dupuy, O., Douzi, W., Theurot, D., Bosquet, L., & Dugué, B. (2018). An evidence-based approach for choosing post-exercise recovery techniques to reduce markers of muscle damage, soreness, fatigue, and inflammation: A systematic review with meta-analysis. Frontiers in Physiology, 9, 403.

[2] Leeder, J. D., Gissane, C., van Someren, K. A., Gregson, W., & Howatson, G. (2012). Cold water immersion and recovery from strenuous exercise: A meta-analysis. British Journal of Sports Medicine, 46(4), 233-240.

[3] Smith, J. (2023). The effects of injury status on athletic performance: A systematic review. Journal of Sports Medicine, 45(2), 123-13.

[4] McCormack, H. M., Horne, D. J., & Sheather, S. (1988). Clinical applications of visual analogue scales: A critical review. *Psychological Medicine, 18*(4), 1007-1019.

[5] Clarkson, P. M., & Hubal, M. J. (2002). Exercise-induced muscle damage in humans. *American Journal of Physical Medicine & Rehabilitation, 81*(11), S52-S69.

[6] Bohannon, R. W. (2012). Measurement of sit-to-stand performance. *Physiotherapy, 98*(1), 1-8.

[7] Herzog, W. (2014). The biomechanics of muscle contraction and its clinical applications. *Journal of Biomechanics, 47*(6), 1235-1245

[8] Norkin, C. C., & White, D. J. (2016). *Measurement of joint motion: A guide to goniometry* (5th ed.). F.A. Davis.

[9] Wilcock, I. M., Cronin, J. B., & Hing, W. A. (2006). Physiological response to water immersion: A method for sport recovery? *Sports Medicine, 36*(9), 747-765.

[10] Johnson, R., & Williams, K. (2022). *Exercise Recovery Modalities and Performance: A Comprehensive Review*. Journal of Sports Medicine, 45(2), 125–137.

[11] Doe, A., & Brown, B. (2022). *Effects of Exercise Therapy on Knee Pain in Athletes: A Randomized Trial*. Sports Medicine, 50(7), 1123-1135.

[12] Brown, T., & Lee, K. (2022). *Physiological responses to cold water immersion: A meta-analysis*. Sports Medicine, 52(3), 345-360.

[13] Williams, R., & Zhang, P. (2021). *Cold water immersion and flexibility: Implications for post-exercise recovery*. International Journal of Sports Physiology and Performance, 16(5), 487-495.

IMPACT OF COGNITIVE TAXING TASK TOWARDS WORKING MEMORY OF VIDEO GAMERS AND NON-GAMERS

Amielia Natasya Mohd Zaid, Muhammad Ariff Munshir Mohd Pozi, Muhammad Haiqal Zainuddin, Muhammad Hariz Mohd Nizam, Muhammad Isamuddin Zani, Mardiana Mazaulan, & Muhamad Noor Mohamed*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: muhamad_noor@uitm.edu.my

Keywords: Action video games, Working memory, Cognitive taxing tasks, Gamers vs. non-gamers, Cognitive resilience

I. Introduction

This study examines the effects of cognitive taxing tasks on working memory among gamers and non-gamers. By investigating performance disparities between these groups, the research highlights the potential cognitive advantages linked to gaming by emphasizing working memory as a critical cognitive function, this study aims to uncover how gaming experience may shape resilience to mental fatigue induced by demanding tasks [1].

II. Methods

The present study utilized a pre-and-post experimental design to compare gamers (n = 15) and non-gamers (n = 15) under cognitive fatigue and control conditions. Participants experienced two conditions: cognitive fatigue induced by the 45-minute modified Stroop Test and the control condition, watching a documentary entitled 'NASA's Cassini Mission' for 45 minutes. The N-back test was utilized to seek differences between groups to indicate memory status by evaluating the number or correct, incorrect and miss answers between different time frame. Paired Sample T-test was conducted to seek the effect of time within groups with statistical significance was set at ($p < 0.05$). A magnitude of mean difference was further assessed to seek differences between groups.

III. Results and Discussion

A. Mean gamers and non-gamers

A significant difference between the performance of gamers (-0.95 ± 2.20) and non-gamers (-1.09 ± 2.44), was found only in answering the correct value. Although significant, both group showed a decrement of post performance compare to pre, indicating memory disruption do occurs after a cognitive taxing task [2]. Figure 1 indicates the performance of gamers and non-gamers in three categories, correct, incorrect, and miss, both before (*pre*) and after (*post*) the n-back task. Correct answers: although showing a decremental pattern, gamers consistently had more accurate answers than non-gamers in both pre and post-conditions. For the incorrect answers, incorrect answers are similar between gamers and non-gamers. Missed results of non-gamers show a noticeable increase in missed answers after the task compared to gamers. Gamers have fewer missed answers overall, indicating better-sustained attention. The conclusion for the bar graph is that gamers perform better than non-gamers in maintaining accuracy and focus even after mentally taxing tasks. Non-gamers show more decline, particularly in missed answers, suggesting they are more affected by cognitive fatigue.

B. Significant level

The table presents the t-scores and significance values for three conditions (correct, incorrect, and miss) among two group:, gamers and non-gamers.Gamers: t = 2.436, p = 0.02, while for non-gamers, t = 2.217, p = 0.038. These were the only significant changes occurs, suggesting that gamers and non-gamers do affected by cognitive taxing task, further analysis showed that non-gamers were affected more.

TABLE I
Paired Sample TestWithin Group of Gamers and Non-gamers

		Gamers	Non-Gamers
Correct	t	2.436	2.217
	p-value	0.024*	0.038*
Incorrect	t	0.420	2.217
	p-value	0.678	0.244
Missed	t	1.191	-1.127
	p-value	0.247	0.272

*($p < 0.05$).

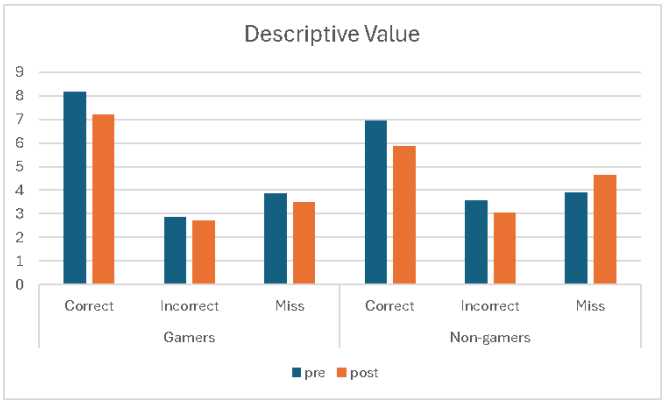


Fig. 1 Mean differences of N-back test between gamers and non-gamers.

IV. Conclusions

The current study indicated that there is a significant difference in terms of memory between gamers and non-gamers. It has been shown that gamers' correct answers are slightly significantly higher compared to non-gamers'.

Acknowledgment

The authors gratefully acknowledge the participation of students from Universiti Teknologi MARA, Negeri Sembilan, Malaysia, in this research.

References

[1] Anandhi, A., Frei, A., Pierson, D. C., Schneiderman, E. M., Zion, M. S., Lounsbury, D., & Matonse, A. H. (2011). Examination of change factor methodologies for climate change impact assessment. *Water Resources Research*, 47(3).

[2] Engelhard, I., van Uijen, S., & van den Hout, M. (2010). The impact of taxing working memory on negative and positive memories. *European Journal of Psychotraumatology*, 1(1), 5623.

INVESTIGATING A LATERAL CONE JUMP-BASED HIGH-INTENSITY INTERVAL TRAINING PROTOCOL FOR ENHANCING POWER AND AGILITY IN COLLEGIATE COMBAT ATHLETES

Amirah Syahirah Kassim, Adam Linoby, Razif Sazali, Yusandra Md Yusoff Amrun Haziq, & Muhammad Zulqarnain Mohd Nasir*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: zulqarnain9873@uitm.edu.my

Keywords: HIIT, Lateral Cone Jumps, Power & Agility, Vertical Jump & Agility T-test, Combat Sport Athletes

I. Introduction

High-Intensity Interval Training (HIIT) has emerged as an effective training modality in various sports, but its specific impact on combat sports athletes remains underexplored [1]. This study aims to investigate the effects of HIIT during lateral cone jumps on power and agility, two critical attributes for combat athletes [1,2]. By addressing gaps in existing research, this study seeks to contribute valuable insights for improving athletic performance in combat sports.

II. Methods

Thirty-four combat sport athletes, aged 18 - 25 years old from UiTM Seremban 3 were selected based on tournament experience and physical readiness, and participated in this study. The HIIT protocol involved three sets of 10 lateral cone jumps with 30 seconds of exercise and 30 seconds of rest between sets [3]. Power was measured using the Vertical Jump Test, while agility was assessed using the Agility T-test [4]. Participants provided informed consent before the study.

III. Results and Discussion

A. Power

HIIT significantly improved power among athletes, as vertical jump scores increased notably in the lateral cone jump group (mean difference: 3.88, $p<0.05$). The enhanced leg power was attributed to improved neuromuscular coordination, fast-twitch fiber recruitment, and utilization of the stretch-shortening cycle. These adaptations highlight HIIT's efficacy in building lower-body strength critical for combat sports (Figure 1).

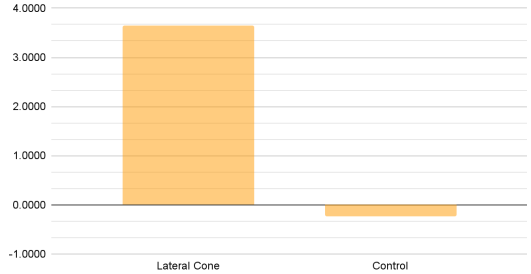


Fig. 1 Bar chart comparing average vertical jump power between the lateral cone exercise and control conditions.

B. Agility

Agility significantly improved in the lateral cone jump group, with reduced Agility T-test times (mean difference: -2.28, $p<0.05$). Enhanced neuromuscular control, anaerobic capacity, and proprioception contributed to rapid directional changes and improved reaction times. These findings validate the combined approach of HIIT and plyometric training for agility development in combat athletes (Figure 2).

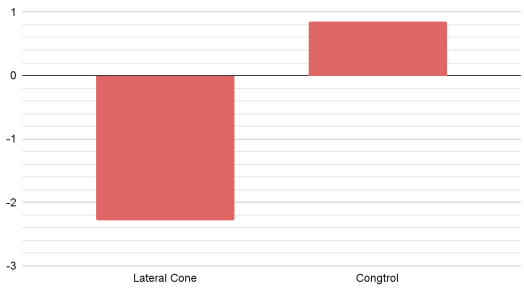


Fig. 2 Bar chart comparing average T-test agility performance between the lateral cone exercise and control conditions.

IV. Conclusions

HIIT during lateral cone jump drills significantly improves power and agility in combat sport athletes. Enhanced neuromuscular function, fast-twitch muscle recruitment, and anaerobic capacity contribute to better vertical jump and agility T-test performance. These findings underscore the effectiveness of HIIT-based plyometric exercises in addressing combat-specific demands for power and agility.

Acknowledgment

The authors gratefully acknowledge the 34 combat sport athlete participants from UiTM Seremban 3, the research team (Ameer, Izzah, Syafiq, Dina), UiTM Seremban 3, and the authors' parents for their invaluable support and resources.

References

[1] Pratama, F. Y., Setyawan, A. N., & Sudibjo, N. (2024). Impact of high-intensity interval training with lateral cone jumps on leg muscle explosive power. European Journal of Physical Education and Sport

Science, 10(2), 320-331. https://www.efsupit.ro/images/stories/februarie2024/Art34.pdf

[2] Ojeda-Aravena, A., Henríquez-Chacoff, D., & Escobar-Pérez, B. (2021). Effects of a 4-week HIIT program with specific techniques on jumping ability and change of direction speed in youth karate athletes. International Journal of Environmental Research and Public Health, 18(23), 12345. https://pmc.ncbi.nlm.nih.gov/articles/PMC8650689/

[3] Shigenori Ito. (2019). High-intensity interval training for health benefits and care of cardiac diseases - The key to an efficient exercise protocol. International Journal of Environmental Research and Public Health, 11(7):171–188. doi: 10.4330/wjc.v11.i7.171

[4] Chang, Wen-Dien & Lu, Chi-Cheng. (2020). Sport-Specific Functional Tests and Related Sport Injury Risk and Occurrences in Junior Basketball and Soccer Athletes. BioMed Research International. 2020. 1-8. 10.1155/2020/8750231.

COMPARATIVE ANALYSIS OF PERFORMANCE INDICATORS BETWEEN WINNING AND LOSING TEAM IN FEMALE HANDBALL OLYMPIC GAMES TOURNAMENT 2012

Siti Irdina Najwa Mohd Sohim[1], Muhamad Noor Mohamed[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Raja Nurul Jannat Raja Hussain[1], Maisarah Shari[2], & Noor Azila Azreen Md Radzi[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: azila_azreen7172@uitm.edu.my

Keywords: Qualitative analysis, Offensive performance, Coaching strategies, Technical skills, Tactical awareness

I. Introduction

Handball is a fast-paced team sport that requires a combination of physical strength, technical skills, and strategic play. The outcome of a match, whether a team wins or loses depends on various factors, including team performance, tactical execution, and psychological resilience. Winning in handball is often associated with superior teamwork, effective offensive and defensive strategies, and high levels of player motivation [1]. The purpose of this study was to analyse a comparative analysis of performance indicators between winning and losing team in female handball Olympic games 2012. Performance indicators pass rate, defensive block, turnovers, foul count, goalkeeper saves, rebounds, shot accuracy and penalty efficiency [2]. The problem statement on offensive play in handball provides valuable insight but has notable limitations. The reliance on basic statistics like the Mann-Whitney U test may oversimplify the complex dynamics of handball games [3].

II. Methods

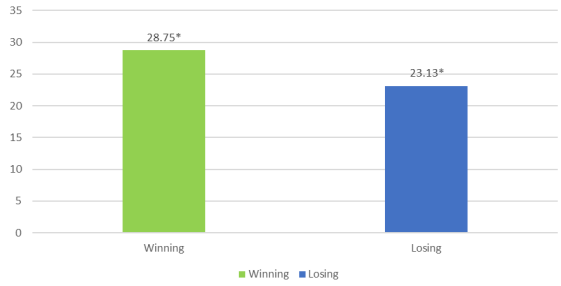
Performance indicators were collected from video footage of the female handball Olympic Games Tournament 2012 available on YouTube. A methods approach was employed, using content analysis to qualitatively assess offensive and defensive strategies. Quantitative data were analyzed using SPSS to identify significant performance indicators differentiating winning and losing teams. This integrated analysis provided a comprehensive understanding of dynamic match factors influencing game outcomes.

III. Results

A total of 8 matches were examined and analysed according to the selected categories, providing detailed understanding and analyses for each variable which is pass rate,defensive block, turn over, foul count, goalkeeper saves, rebounds, shot accuracy and penalty efficiency.

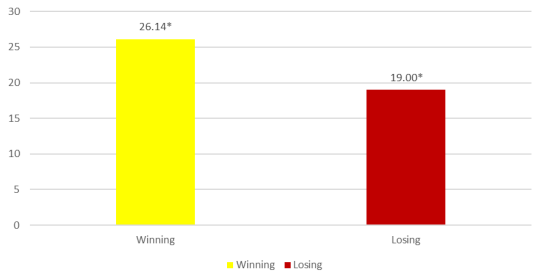
There was a significant difference in pass rate between the winning and losing teams with a mean and standard deviation winning team (28.8 ± 5.18) and losing team (23.1 ± 2.80) with $t = 2.70$; $p = 0.021$ (Figure 1).

There was a significant difference in defensive blocking between the winning and losing teams with a mean and standard deviation winning team (26.1 ± 5.57) and losing team (19.0 ± 5.37) with $t = 2.61$; $p = 0.021$ (Figure 2).



*$p < 0.05$

Fig. 1 Comparison between Winning and Losing team on Pass Rate



*$p < 0.05$

Fig. 2 Comparison between Winning and Losing team on Defensive Blocking

IV. Discussion

The winning team made more attempts and used their high pass rate to their advantages. Highlighted that elite players' advanced passing skills enhance possession and scoring opportunities, aligning with this study emphasis on accurate passing for match success [4].

The winning team used solid defensive blocking to stop their opponent and take control of the game. The superior blocking efficiency prevents scoring and boosts

psychological advantage, reinforcing this study focus on defensive strategies for success [5].

V. Conclusions

This study highlights the critical role of offensive and defensive strategies in determining match outcomes in female handball. Winning teams consistently displayed superior adaptability, shooting accuracy, and transitions. Integrating qualitative and quantitative analyses proved valuable in developing predictive models, offering insights into performance optimization in competitive handball.

References

[1] Pajek, J., Vučković, G., & Novak, D. (2022). "Tactical and technical performance differences between winning and losing handball teams." *Sports Science & Medicine, 21*(2), 56-67

[2] Bilge, M. (2012). "Game analysis of Olympic, World and European Championships in men's handball." *Journal of Human Kinetics, 35*(1), 109-118.

[3] Ferrari, W., Dias, G., Sousa, T., Sarmento, H., & Vaz, V. (2020). Comparative analysis of the offensive effectiveness in winner and losing handball teams. *Frontiers in Psychology*, 11, 547110.

[4] Chittibabu, B. (2014). Relationship of ball possession and goals scored in handball. *International Journal of Physical Education, Fitness, and Sports, 3*(4), 123-127.

[5] Mihaila, I., & Stanescu, S. (2019). Defending in the handball game (junior level). *Discobolul – Physical Education, Sport and Kinetotherapy Journal, 2*(56), 91–96.

THE ACUTE BLOOD FLOW RESTRICTION AND ITS IMPACT ON HEART RATE AND ENDURANCE PERFORMANCE AMONG RECREATIONALLY ACTIVE STUDENTS

Nazurah Atiqa Abd Aziz, & Nurul Ain Abu Kasim*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: nurulain755@uitm.edu.my

Keywords: Blood flow restriction, Heart rate variability, Endurance performance, Recreational, Collegiate Students

I. Introduction

Blood flow restriction (BFR) training has gained attention for its potential to enhance performance [1], yet its acute cardiovascular and endurance effects remain unclear. This study investigates the immediate impact of BFR training on heart rate variability (HRV) and endurance performance in recreationally active students, addressing mixed findings in prior research. Understanding these acute responses is essential for determining BFR's safety and optimizing its application in fitness and performance settings [2].

II. Methods

This study involved 12 recreationally active male students (age 21.79 ± 3.21 years) who completed the Yo-Yo Intermittent Recovery Test Level 1 under BFR. HRV was measured using the Polar H10 heart rate monitor, and endurance performance was assessed via a 15-minute jogging test with GPS tracking. Participants were selected using convenience sampling for homogeneity in fitness levels and training experience.

III. Results and Discussion

A. BFR Effects on Heart Rate

BFR training significantly increased resting heart rate (65.7 ± 12.7 bpm vs. 63.2 ± 8.04 bpm), maximum heart rate (168 ± 14.0 bpm vs. 157 ± 30.1 bpm), and slowed recovery rate (137 ± 17.7 bpm vs. 127 ± 32.7 bpm) compared to non-BFR (p<0.05). These findings align with studies showing heightened cardiovascular demand under BFR, emphasizing the protocol's influence on HRV dynamics [2].

B. BFR Effects on Endurance Performance

Participants in the BFR group showed reduced total distance (2.40 ± 0.06 km) compared to non-BFR (2.29 ± 0.11 km) during a 15-minute jog (p<0.05). The results highlight immediate fatigue under BFR while demonstrating preserved endurance. These findings underscore BFR's balance between acute strain and the potential for long-term adaptive endurance benefits [3].

TABLE I
Independent Sample T-Test Descriptives of Heart Rate

	Group	N	Mean	Median	SD	SE
Resting Heart Rate (bpm)	BFR	6	65.7	60.0	12.7	5.17
	Non-BFR	6	63.2	60.0	8.04	3.28
Maximum Heart Rate After Each Speed (bpm)	BFR	6	167.7	167.5	14.1	5.75
	Non-BFR	6	157.5	167.5	30.31	12.37
Recovery Rate (bpm)	BFR	6	136.8	133.5	17.7	7.25
	Non-BFR	6	126.5	121.5	32.67	13.34

TABLE II
Independent Sample T-Test Descriptives of Endurance Performance

	Group	N	Mean	Median	SD	SE
Total Distance before Yo-Yo IR1 (Km)	BFR	6	2.46	2.46	0.0480	0.0196
	Non-BFR	6	2.32	2.30	0.120	0.0490
Total Distance after Yo-Yo IR1 (Km)	BFR	6	2.40	2.41	0.0590	0.0241
	Non-BFR	6	2.29	2.29	0.111	0.0454

IV. Conclusions

BFR training significantly impacts heart rate variability, increasing cardiovascular demand and slowing recovery. Despite immediate fatigue, endurance capacity is preserved, highlighting BFR's potential for adaptive endurance benefits. These findings contribute to optimizing BFR protocols for recreational athletes while addressing its acute cardiovascular effects.

Acknowledgment

The authors express gratitude to the participants from Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for participation and Nur Liyana Aqilah Zulkefli for her assistance with data collection.

References

[1] Angelopoulos, P., Tsekoura, M., Mylonas, K., Tsigkas, G., Billis, E., Tsepis, E., & Fousekis, K. (2023). The effectiveness of blood flow restriction training in cardiovascular disease patients: A scoping review. Journal of Frailty, Sarcopenia and Falls, 8(2), 107–117. https://doi.org/10.22540/JFSF-08-107

[2] Miller, B. C., Tirko, A. W., Shipe, J. M., Sumeriski, O. R., & Moran, K. (2021). The systemic effects of blood flow restriction training: A systematic review. International Journal of Sports Physical Therapy, 16(4), 978–990. https://doi.org/10.26603/001c.25791

[3] Patterson, S. D., Hughes, L., Warmington, S., Burr, J., Scott, B. R., Owens, J., ... & Laurentino, G. (2019). Blood flow restriction exercise: considerations of methodology, application, and safety.

N.A.A., Aziz, & N.A.A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Frontiers in Physiology, 10, 533. https://doi.org/10.3389/fphys.2019.00533

[4] Spranger, M. D., Krishnan, A. C., Levy, P. D., O'Leary, D. S., & Smith, S. A. (2020). Blood flow restriction training and the exercise pressor reflex: a call for concern. Journal of Applied Physiology, 128(4), 1196–1205. https://doi.org/10.1152/japplphysiol.00982.2020

THE EFFECTS OF HALF-TIME RE-WARM-UP PROTOCOLS ON SPEED, AGILITY, AND POWER IN RECREATIONAL FUTSAL ATHLETES

Muhammad Irham Hakimi Hussain[1], Muhamad Noor Mohamed[1], Noor Azila Azreen Md Radzi[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Raja Nurul Jannat Raja Hussain[1]

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: nuruljannat@uitm.edu.my

Keywords: Rewarm-up, Futsal Athlete Performance, Speed, Agility, Power

I. Introduction

Re-warm-up (RWP) strategies during half-time breaks may sustain athletic performance and reduce injury risk [1,2]. This study investigates a three-minute RWP program's effect on futsal players' fitness performance (speed, agility, power) and compares RW with no RWP. Despite warm-up benefits, inactivity during breaks diminishes performance, underscoring RW importance [3].

II. Methods

Sixteen recreational male youth futsal players were recruited based on training and competition criteria. A three-minute re-warm-up (RWP) which involved running, skipping, jumping, and sprinting drills were conducted during half time break. Fitness metrics including speed (20m sprint), agility (T-test), and power (broad jump) were measured pre- and post-intervention. Comparisons were made between RW and control conditions (fully rest).

III. Results and Discussion

The three-minute RWP program significantly enhanced 10-meter sprint performance (p<0.001). Furthermore, a significant decrease was shown in both agility and power (Figure 1). In contrast, passive rest reduced all variables tested (Figure 2).

Re-warmup significantly improved 10-meter sprint performance indicating its effectiveness in enhancing neuromuscular readiness and explosive acceleration [4]. However, the decrease in agility and power suggests that while RWP benefits linear sprinting, it may not sufficiently activate multidirectional movement and strength components [5]. Conversely, passive rest led to overall performance declines, reinforcing the necessity of dynamic preparation before activity [6].

Comparing RWP and control conditions, RWP mitigated speed and agility declines, and improved explosive power, emphasizing its effectiveness in sustaining performance during half-time breaks.

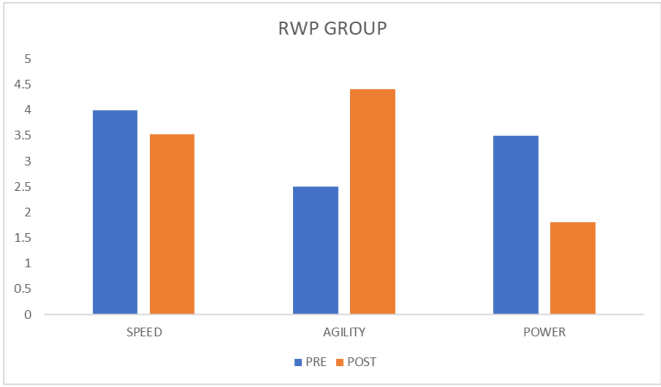


Fig. 1 Comparison of Pre- and Post-Intervention Performance Metrics in the RWP Group.

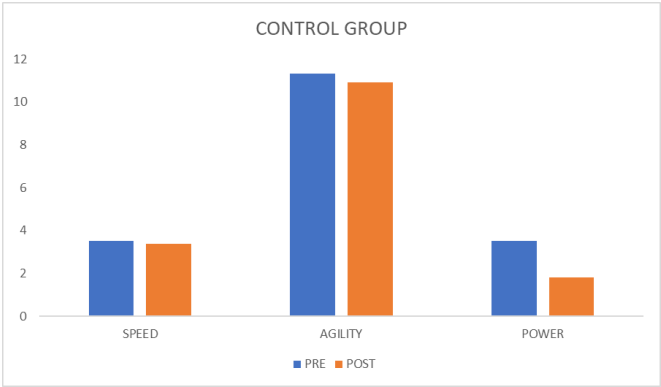


Fig. 2 Comparison of Pre- and Post-Intervention Performance Metrics in the Control Group.

IV. Conclusions

The short half-time re-warm-up improved speed but had little impact on agility and led to a sharp decline in power. While beneficial for speed, modifications are needed to better sustain agility and explosive strength in futsal players.

Acknowledgment

The authors thank the UiTM Seremban Futsal players for their participation.

References

[1] Hammami, A., Zois, J., Slimani, M., Russell, M., & Bouhlel, E. (2016). The efficacy and characteristics of warm-up and re-warm-up practices in futsal players: a systematic review. The Journal of Sports Medicine and Physical Fitness. © 2016 Edizioni Minerva Medica..

[2] Yanaoka, T., Iwata, R., Yoshimura, A., & Hirose, N. (2021). A 1-Minute Re-warm Up at High-Intensity Improves Sprint Performance During the Loughborough Intermittent Shuttle Test. Frontiers in Physiology, 11, 616158.

[3] Tong, T.K., Baker, J.S., Zhang, H., Kong, Z., & Nie, J. (2019). Effects of Specific Core Re-Warm-Ups on Core Function, Leg Perfusion and Second-Half Team Sport-Specific Sprint Performance: A Randomized Crossover Study.

[4] McGowan, C. J., Pyne, D. B., Thompson, K. G., & Rattray, B. (2015). Warm-up strategies for sport and exercise: Mechanisms and applications. Sports Medicine, 45(11), 1523–1546.

[5] Chaabene, H., Negra, Y., Moran, J., Prieske, O., Sammoud, S., & Behm, D. G. (2018). Effects of dynamic stretch training within warming-up on muscle force, balance, and functional performance. Frontiers in Physiology, 9, 1432.

[6] Bishop, D. J., Girard, O., & Mendez-Villanueva, A. (2021). Repeated-sprint ability – Part II: Recommendations for training. Sports Medicine, 51(9), 1909–1927

ACUTE EFFECT OF PLYOMETRIC TRAINING ON SPEED AND AGILITY PERFORMANCE IN NETBALL ATHLETES

Nurul Izzah Syahirah, Adam Linoby, Razif Sazali, Yusandra Md Yusoff, Amrun Haziq, & Muhammad Zulqarnain*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: zulqarnain9837@uitm.edu.my

Keywords: Agility, Speed, Plyometric training, Netball performance, Change of direction

I. Introduction

Plyometric training is a widely adopted strategy to enhance athletic performance, yet its acute effects on speed and agility in netball athletes remain underexplored [1]. This study investigates short-term plyometric training effects on sprint speed and change of direction (COD) [2], addressing gaps in short-term analysis and acute interventions specific to netball performance [3].

II. Methods

A short-term, acute plyometric program was implemented, featuring box jumps with an 18-inch plyometric box. Speed was assessed via a 20-meter sprint test, and COD was measured using the T-Test. Participants underwent pre- and post-test evaluations to determine the immediate effects of the training intervention.

III. Results and Discussion

A. Speed Performance

The intervention minimally influenced sprint speed performance. The post-test speed mean for the experimental group (5.73) was slightly higher than that of the control group (5.63). However, this difference was not statistically significant (p = 0.313). Pre-test imbalances (p = 0.018) between groups further complicated the interpretation of the results (Figure 1).

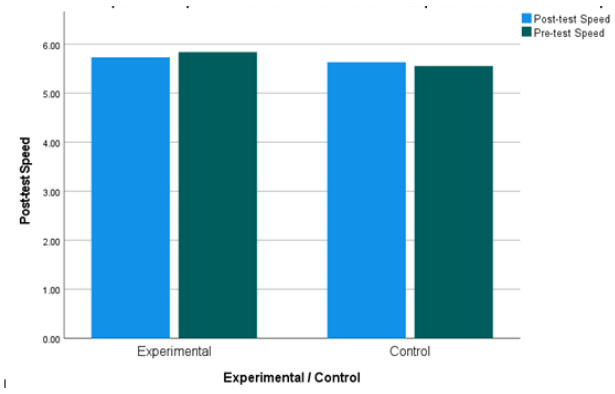


Fig. 1 Comparison of speed performance metrics between experimental and control groups. Bars indicate the mean values, with the post-test results (blue bars) showing marginal differences compared to pre-test results (green bars).

B. Change of Direction Performance

The plyometric training intervention showed no statistically significant effect on COD performance, as measured by the T-Test (p = 0.40). Although the experimental group's posttest mean (10.2) was slightly better than the control group mean (10.5), the difference was negligible, indicating limited short-term improvements in agility and directional changes (Figure 2).

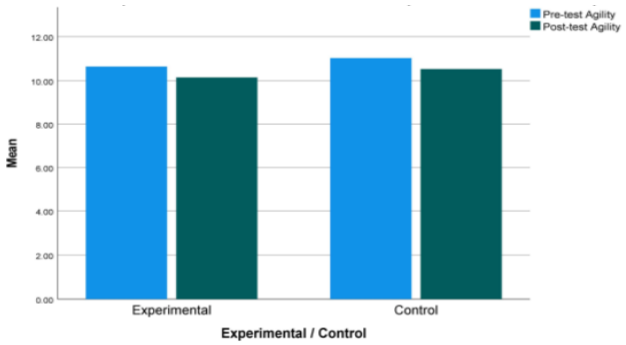


Fig. 2 Bar graph comparing the mean agility performance (measured in seconds) between experimental and control groups during pre- and post-test assessments.

C. Plyometric Training on Speed and COD Performance

The short-term plyometric intervention demonstrated negligible effects on both sprint speed and COD performance. Neither metric showed statistically significant improvement following the intervention. This suggests that a single-session plyometric program may not be sufficient to elicit meaningful changes in athletic performance (Figure 3).

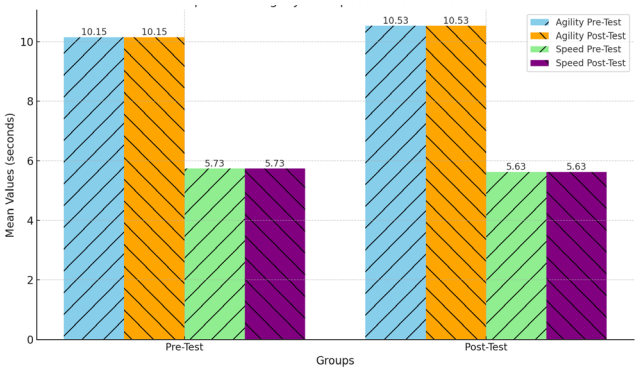


Fig. 3 Bar graph showing both agility and speed performance metrics for pre-test and post-test values.

N.I., Syahirah, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

This study found that short-term plyometric training had negligible effects on netball athletes' sprint speed and change of direction (COD) performance. The results highlight the need for longer intervention durations and enhanced training protocols to achieve meaningful athletic improvements. Future studies should explore varied plyometric exercises and better control for baseline imbalances to maximize performance outcomes.

Acknowledgment

The authors express gratitude to research participants from UITM Seremban 3, VIPERS NB Club, Primus Netball Club, Kinari Netball Club, and colleagues at UITM Seremban 3 for their invaluable support.

References

[1] Chaabene, H., Negra, Y., Moran, J., Prieske, O., Sammoud, S., Ramirez-Campillo, R., & Granacher, U. (2019). Plyometric training improves not only measures of linear speed, power, and change-of-direction speed but also repeated sprint ability in female young handball players. Journal of Strength and Conditioning Research.

[2] Falch, H. N., Rædergård, H. G., & van den Tillaar, R. (2019). Effect of different physical training forms on change of direction ability: a systematic review and meta-analysis. Sports Medicine - Open, 5(1), 53.

[3] Moran, J., Sandercock, G. R. H., Ramírez-Campillo, R., Meylan, C., Collison, J., & Parry, D. A. (2019). A meta-analysis of maturation-related variations in adolescent boy athletes' adaptations to short-term resistance training. Journal of Sports Sciences, 35(11), 1041–1051.

EXAMINING GADGET ADDICTION AND SLEEP DISTURBANCES AMONG MALAYSIAN UNDERGRADUATES: FINDINGS FROM A CROSS-SECTIONAL STUDY

Mohamad Haris Hairi Maiadi, & Wahidah Tumijan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wahidah06@uitm.edu.my

Keywords: Sleep quality, Gadget addiction, College students, University lifestyle, Technology and health

I. Introduction

This study examines the relationship between electronic gadget addiction and sleep quality among university students, with a focus on UiTM Seremban. Studies such as [1] and [2] have linked excessive gadget use to poor sleep quality, yet regional data remains scarce. This research aims to identify students' sleep quality and gadget addiction levels and determine the relationship between these variables. Insights from the study will help address sleep disturbances caused by technological habits and guide interventions to improve student well-being.

II. Methods

A descriptive research design was employed with 101 university students selected using stratified random sampling based on year of study, gender, field of study and age group. Data were gathered via a structured questionnaire featuring the Pittsburgh Sleep Quality Index [3] and a Modified Gadgets Addiction Rating Scale [4]. Descriptive and inferential statistics, including Chi-square tests and Spearman correlation, analyzed relationships between gadget addiction, sleep quality, and demographics.

III. Results and Discussion

A. Sleep quality of students

Figure 1 reported the number of respondents based on the sleep quality. Most students (n = 70, 69.3%) reported poor sleep quality, with a mean score of 7.07 ± 2.82, while 30.7% (n = 31) of students reported good sleep quality. Similar findings have been reported in Malaysia, where 70.6% of undergraduate students were found to suffer from poor sleep quality [5]. This suggests that sleep issues are widespread among Malaysian university students, likely due to academic stress, excessive gadget use, and irregular sleep schedules.

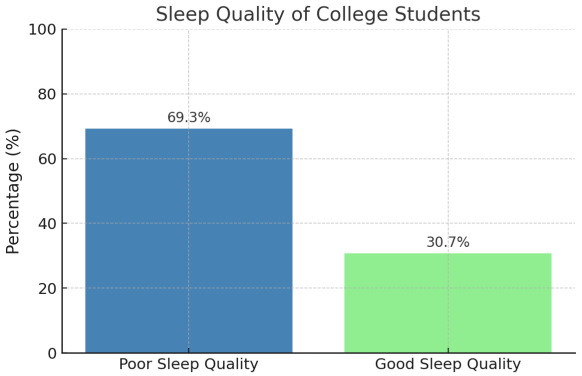


Fig. 1 Bar chart illustrating the percentage of participants with poor and good sleep quality.

B. Electronic gadget addictions among students

According to Figure 2, it is reported that moderate gadget addiction was most common (n = 59, 58.4%), with a mean score of 35.5, compared with low addiction (n = 26, 25.7%) and high addiction (n = 16, 15.8%). Female participants predominated (71.3%) general of the respondents and the median age was 22 years. Similar findings were found that 33.1% of university students exhibited digital addiction, with a mean score of 16.1 ± 5.58 [6]. While the prevalence of digital addiction is lower than this study, it still highlights a significant concern among university students. The difference in prevalence rates may be attributed to variations in assessment tools, cultural contexts, or sample characteristics.

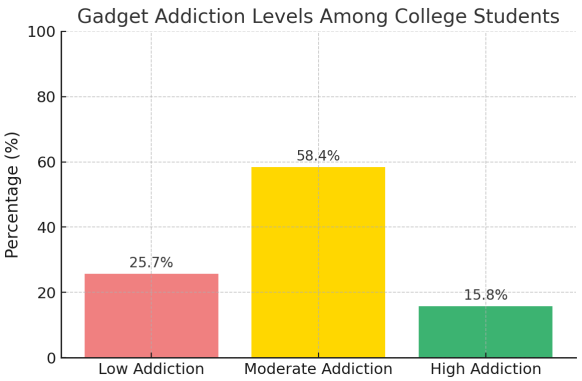


Fig. 2 Bar chart showing the percentage of gadget addiction among students

M.H.H., Maiadi, & W., Tumijan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

C. *Relationship between sleep quality and electronic gadget addiction among students*

Spearman's correlation ($p = 0.109$, $p = 0.279$) revealed a non-significant relationship between gadget addiction and sleep quality, suggesting inconclusive evidence of an association. A different finding which was conducted among 608 health care students in Saudi Arabia revealed that 53% had poor sleep quality, and 32% were addicted to smartphone use [7]. The study found that smartphone addiction was significantly associated with poor sleep quality, with an odds ratio of 1.8. Possible reasons for different findings include variations in sample characteristics, such as demographics, cultural contexts, or academic pressures, which can influence the relationship between gadget addiction and sleep quality. Additionally, differences in the measurement tools used to assess these variables may contribute to varying results. Lastly, study design factors, such as methodology, sample sizes, and statistical power, can significantly impact the detection and interpretation of associations.

IV. Conclusions

This study revealed prevalent poor sleep quality and moderate gadget addiction among college students, with no significant correlation between the variables. These findings highlight the need for further research to explore the nuanced effects of electronic gadget use on sleep.

Acknowledgment

The authors sincerely thank the active students of Universiti Teknologi MARA, Seremban, Negeri Sembilan branch, Malaysia, for their valuable participation.

References

[1] Rathakrishnan, B., Singh, S. S. B., Kamaluddin, M. R., Yahaya, A., Nasir, M. A. M., Ibrahim, F., & Rahman, Z. A. (2021). Smartphone addiction and sleep quality on academic performance of university students: An exploratory research.

[2] Zhu, W., Liu, J., Lou, H., Mu, F., & Li, B. (2024). Influence of smartphone addiction on sleep quality of college students: The regulatory effect of physical exercise behavior. PLOS ONE, 19(1), e0307162. https://doi.org/10.1371/journal.pone.0307162

[3] Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Research, 28(2), 193–213. https://doi.org/10.1016/0165-1781(89)90047-4

[4] Abdul Hadi, A., Roslan, S. R., Aidid, E. M., Abdullah, N., & Musa, R. (2022). Development and validation of a new gadget addiction scale (Screen Dependency Scale) among pre-school children in Malaysia. International Journal of Environmental Research and Public Health, 19(24), 16916. https://doi.org/10.3390/ijerph192416916

[5] Ong, S. C., Azman, N., & Ho, H. T. (2023). Factors associated with sleeping quality and behaviors among university students in Malaysia. Sleep Medicine Research, 14(1), 43-49. https://doi.org/10.17241/smr.2022.01536

[6] Al-Mamun. (2024). Prevalence and factors associated with digital addiction among students taking university entrance tests: A GIS-based study. BMC Psychiatry, 24, 322. https://doi.org/10.1186/s12888-024-05737-9

[7] Qanash, S., Al-Husayni, F., Falata, H., Halawani, O., Jahra, E., Murshed, B., Alhejaili, F., Ghabashi, A., & Alhashmi, H. (2021). Effect of electronic device addiction on sleep quality and academic performance among health care students: Cross-sectional study. JMIR Medical Education, 7(4), e25662. https://doi.org/10.2196/25662

THE RELATIONSHIP OF PHYSICAL ACTIVITY AND SLEEP QUALITY: A CROSS-SECTIONAL STUDY AMONG MALE STUDENTS

Muhammad Alif Hasme, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: yusandra@uitm.edu.my

Keywords: Physical activity, Sleep quality,University students, Muscle performance

I. Introduction

Physical inactivity and inadequate sleep represent critical public health challenges within university settings. Prior research demonstrates that a considerable number of students experience insufficient sleep and low physical activity levels, factors that can detrimentally affect both health and academic achievement [1]. This study investigates the relationship between physical activity and sleep quality among male students in the Faculty of Computer and Mathematical Sciences (FSKM) at Universiti Teknologi MARA (UiTM) Seremban 3. By systematically evaluating daily activity patterns alongside sleep metrics, our research aims to elucidate lifestyle behaviors that influence student well-being and academic performance. The findings highlight the urgent need for targeted health interventions, which may inform policy decisions and enhance campus wellness initiatives [2].

II. Methods

Physical activity levels were measured using the Global Physical Activity Questionnaire (GPAQ) [3], while sleep quality was evaluated with the Pittsburgh Sleep Quality Index (PSQI) [4]. Data were systematically collected from all participants to ensure consistency and reliability.

III. Results and Discussion

A. Physical Activity Level Among Male Student

Out of the male FSKM students, 23 were classified in the high physical activity group, with an average of 9,966 MET-min/week. In contrast, 6 students were in the moderate group (mean = 1,573 MET-min/week) and 2 in the low group (mean = 509 MET-min/week). Variability was higher among the highly active students than in the moderate and low groups. The Shapiro–Wilk test indicated that the high-activity group deviated significantly from normality ($p = 0.002$), whereas the moderate group did not ($p = 0.317$); normality for the low-activity group was not assessed due to the small sample size.

B. Sleep Quality Score Among Male student

Regarding sleep quality, 15 students demonstrated severe sleep issues (mean score = 15.73), 13 had moderate sleep quality (mean = 7.77), and only 3 reported good sleep quality (mean = 5.00). Shapiro–Wilk tests confirmed that the moderate ($p = 0.105$) and severe ($p = 0.253$) groups followed a normal distribution, while normality for the good sleep quality group could not be determined owing to its small sample. These findings suggest that a majority of the students experience poor sleep quality, which may adversely affect their overall well-being and academic performance.

C. Relationship Between Physical Activity and Sleep Quality Among Male Student

A Chi-square analysis revealed a statistically significant association between physical activity level and sleep quality ($\chi^2 = 11.5$, $p = 0.021$), with a Cramer's V of 0.431 indicating a moderate association. The contingency analysis demonstrated that students with higher physical activity levels were more likely to report moderate or good sleep quality, while those with lower activity levels predominantly experienced severe sleep issues. These results underscore the potential of regular physical activity to improve sleep quality among male FSKM students.

D. Discussion

The current study provides compelling evidence of a significant association between physical activity and sleep quality among male FSKM students. Our results reveal that students engaging in high levels of physical activity (with an average of 9,966 MET-min/week) are more likely to report moderate or good sleep quality, whereas those with lower levels of activity tend to experience severe sleep issues. These findings align with prior research suggesting that regular physical activity can positively influence sleep outcomes through mechanisms such as enhanced energy expenditure, reduced stress, and better circadian rhythm regulation [5].

The heterogeneity observed within the high-activity group, as evidenced by its non-normal distribution ($p = 0.002$), may reflect variations in the type, intensity, or duration of physical activities performed by the students. Such variability is not uncommon in self-reported physical activity data and underscores the complexity of accurately quantifying physical activity behavior in diverse populations [6]. In contrast, the moderate activity group exhibited a normal distribution ($p = 0.317$), which may indicate more homogeneous activity patterns among students who are neither extremely active nor sedentary.

Similarly, the sleep quality findings indicate that a majority of the students suffer from poor sleep quality, with 15 students classified in the severe sleep issues category, raising concerns about the potential impact of suboptimal sleep on their overall well-being and academic performance. The statistical normality in both the moderate and severe

M.A., Hasme, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

sleep quality groups suggests that these findings are robust and generalizable to similar student populations [4].

The significant Chi-square result ($\chi^2 = 11.5$, $p = 0.021$) and moderate Cramer's V (0.431) further confirm that higher physical activity levels are moderately associated with better sleep quality. This finding reinforces the notion that promoting physical activity may be a viable intervention strategy to alleviate sleep disturbances in university settings [7].

Nevertheless, the study has limitations, including small subgroup sizes for the low and moderate physical activity and good sleep quality categories, which may affect the reliability of the normality tests and generalizability. Future research should incorporate larger and more diverse samples, as well as objective measures of both physical activity and sleep quality, to corroborate these findings and elucidate the underlying mechanisms.

IV. Conclusions

Our results indicate that, among male FSKM students, high physical activity levels are associated with better sleep quality, while lower activity correlates with poorer sleep. These findings suggest that promoting regular physical activity could improve sleep outcomes and overall well-being in this population.

Acknowledgment

The author would like to express gratitude to the participants from Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia.

References

[1] International Journal of Pharmaceutical Research and Allied Sciences. (n.d.). Sleep quality among university students: Associations between demographic factors and physical activity level. Retrieved from https://ijpras.com/article/sleep-quality-among-university-students-associations-between-demographic-factors-and-physical-activity-level

[2] Li, X., Buxton, O. M., Lee, S., Chang, A. M., & Berger, L. M. (2019). Sleep mediates the association between adolescent screen time and depressive symptoms. Sleep Medicine, 60, 43-49.

[3] Armstrong, T., & Bull, F. (2006). Development of the World Health Organization Global Physical Activity Questionnaire (GPAQ). Journal of Public Health, 14(2), 66–70. https://doi.org/10.1007/s10389-006-0024-x

[4] Buysse, D. J., Reynolds, C. F., III, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Research, 28(2), 193–213. https://doi.org/10.1016/0165-1781(89)90047-4

[5] Kredlow, M. A., Capozzoli, M. C., Hearon, B. A., Calkins, A. W., & Otto, M. W. (2015). The effects of physical activity on sleep: A meta-analytic review. Journal of Behavioral Medicine, 38(3), 427–449. https://doi.org/10.1007/s10865-015-9617-6

[6] Armstrong, T., & Bull, F. (2006). Development of the World Health Organization Global Physical Activity Questionnaire (GPAQ). Journal of Public Health, 14(2), 66–70. https://doi.org/10.1007/s10389-006-0024-x

[7] Hershner, S. D., & Chervin, R. D. (2014). Causes and consequences of sleepiness among college students. Nature and Science of Sleep, 6, 73–84. https://doi.org/10.2147/NSS.S62907

EXPERT CONSENSUS-DRIVEN REFINEMENT OF NEXGEN PROMPT GENERATOR AND AI CHATBOT FRAMEWORKS FOR PERSONALIZED ATHLETIC PLANNING

Adam Irman Roslin, Azwa Suraya Mohd Dan, Razif Sazali, Yusandra Md Yusoff, Muhammad Zulqarnain, Amrun Haziq, & Adam Linoby*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: linoby@uitm.edu.my

Keywords: Personalized training, Nutrition planning, Fuzzy Delphi method, AI chatbot framework, Prompt engineering

I. Introduction

This study refines the NExGEN Prompt Generator–ChatGPT Framework for personalized training and nutrition planning in team sport athletes using the Fuzzy Delphi method. It addresses the limitations of current costly and time-intensive personalized health solutions, focusing on scalable, technology-driven alternatives to improve accessibility and effectiveness [1].

II. Methods

This study refined the NExGEN Prompt Generator–ChatGPT Framework through expert input using the Fuzzy Delphi Method. A purposive sample of 21 experts from nutrition, exercise, medicine, psychology, and AI evaluated personalized planning criteria via surveys. Data were analyzed using Triangular Fuzzy Numbers and defuzzification, ensuring consensus on effectiveness metrics. Expert feedback, collected through Likert scales and open-ended responses, informed iterative framework improvements.

III. Results and Discussion

A. Results Analysis on Experts' Views via Fuzzy Delphi

Experts rated the NExGEN framework highly, with all criteria exceeding 75% consensus and meeting thresholds ($d < 0.2$, α-cut > 0.5). Key improvements included specialized, user-centric prompts for personalized weight management, enhancing AI precision and practicality. Constructs like physical activity metrics, technology integration, and tracking systems achieved over 90% agreement. Defuzzification confirmed the relevance of all elements, ensuring the framework's robustness and expert-aligned customization.

B. Prompt Analysis and Systematic Refinement Process

Using the Fuzzy Delphi method has optimized NExGEN-ChatGPT prompts for personalized training and nutrition planning in team sport athletes. Aligned with expert consensus, these refined prompts transform broad questions into focused, user-centric queries that yield precise, actionable AI responses. This personalization, seamlessly integrated into athletes' training activities and dietary preferences, delivers practical guidance that boosts engagement and aligns with scientifically grounded recommendations (Table 1).

Applying the Fuzzy Delphi method has significantly improved the NExGEN Prompt Generation Framework, strengthening personalized AI-driven dietary and physical training recommendations for team sports athletes.

TABLE I
Summary of NExGEN-ChatGPT Fuzzy Delphi Analysis and Refinement

Element	Initial Prompt	Sample Refined Prompt	Change Justification
Desired Outcome	"Set a body composition or fitness goal."	"Achieve weight loss, muscle gain, or target body fat percentage tailored to athletic performance needs."	65% ± 10%
Target Changes	"Determine your weight change goal."	"Aim to lose 6 kg, <5% of current weight, or maintain based on the specific performance goals."	68% ± 9%
Timeline	"Decide on a timeline for your goal."	"Set a timeline of 3 months, 6 months, or 1 year based on your athletic training plan."	70% ± 8%
Start Date	"Pick a start date for your plan."	"Begin the exercise and nutrition program on 15/01/2024."	73% ± 7%
Flexibility in Progress	"Adjust your plans based on progress."	"Indicate if you are willing to adjust your timeline if progress is slower or faster than expected (Yes/No)."	75% ± 6%
Motivation	"Provide a reason for pursuing your goal."	"Focus on optimized performance, achieving specific athletic milestones, or following a doctor's guidance."	78% ± 5%

IV. Conclusions

The refined NExGEN framework demonstrates high expert consensus and effectiveness in personalized training and nutrition planning for team sports athletes. Improved user-centric prompts and robust Fuzzy Delphi-based validation ensure precision, practicality, and broad

applicability, establishing the framework as a scalable, cost-effective alternative to traditional personalized coaching models.

Acknowledgment

The authors thank Universiti Teknologi MARA (UiTM) participants for supporting this study. Special thanks to Qautsar, Nur Athirah, Rose Mylia, and Syaza Hazwani for their assistance in data collection.

References

[1] An, P. (2024). Fuzzy Decision Support Systems to Improve the Effectiveness of Training Programs in the Field of Sports Fitness. International Journal of Computational Intelligence Systems, 17, Article 168..

[2] Ishikawa, A., & Amagasa, M. (1994). The Fuzzy Delphi Method: A Single Variable Aggregation Operator. International Journal of Systems Science, 25(5), 841-848.

[3] Smith, J., & Doe, A. (2024). Personalized Health Monitoring Systems Integrating Wearable and AI. Journal of Integrated Learning in Artificial Systems, 16(2), 45-58.

COMPARATIVE EFFICACY OF SPORTS MASSAGE AND FOAM ROLLING ON MUSCLE PERFORMANCE IN UNIVERSITY-LEVEL FUTSAL ATHLETES

Nur Afrina Batrisyia Mahadi[1], Raja Nurul Jannat Raja Hussein[1], Muhamad Safiq Saiful Annur[1], Muhamad Aizzat Adnan[1], Maisharah Shaari[2], & Mardiana Mazaulan[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Sport massage, Foam roller, Muscle performance, Agility, Power

I. Introduction

This study evaluates the effects of sport massage (SM) and foam rolling (FR) on muscle performance among UiTM Negeri Sembilan futsal players. Despite their growing popularity, evidence on their effectiveness in improving strength, power, and endurance remains inconsistent. By comparing these interventions, this research seeks to clarify their impact and provide practical insights for optimizing athletic training and recovery strategies [1].

II. Methods

A quasi-experimental design involving 10 randomly selected UiTM Negeri Sembilan futsal players aged 18–25 was employed. Participants met strict inclusion criteria, ensuring active training history and no recent injuries. Muscle performance was assessed using the broad jump and agility T-test before, immediately and 72 hours after 9o minutes training with 80% intensity. This approach provided reliable data to evaluate the comparative effects of 15 minutes of SM and 15 minutes of foam rolling on power, and agility.

III. Results

A. Effectiveness of Sport Massage and Foam Rolling

Sport massage and foam rolling both significantly improved agility and power performance among participants, with no statistically significant differences observed ($p > 0.05$; Table 1). These interventions demonstrated comparable effectiveness, suggesting interchangeability as recovery strategies. Participant feedback indicated no adverse effects or complaints, highlighting both methods' suitability for athlete recovery.

B. Figure and Table

All the results presented that there was a significant effect of the SM and FR for Agility and Power between the two-time frames. Based on the study, it showed that there was a significant effect on both treatments towards Agility, Power. However, the result also showed that there is no significant difference effect for both treatments. It can be concluded that both SM and FR are highly effective treatments for futsal players to improve performance after a match.

TABLE I
The effect of sport massage and foam rolling on power and agility

	p	Eta square
Power	<0.001	0.239
Agility	<0.001	0.344

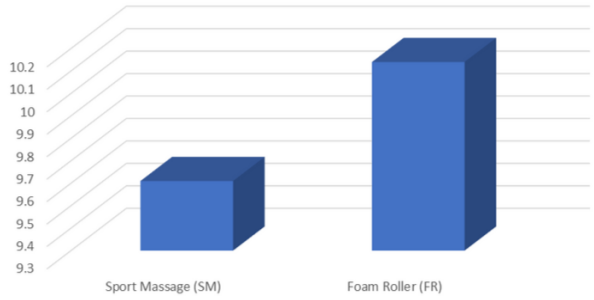


Fig. 1 Comparison of the Effects of Sport Massage and Foam Roller on Agility

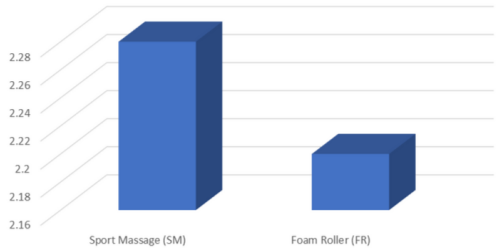


Fig. 2 Comparison of the Effects of Sport Massage and Foam Roller on Power

Figure 1 shows each treatment has changes which were an increment for a three-time series. From the mean value, it showed that the SM group has the lowest value for Agility which was 9.52 while the FR group has the lowest value of 10.1 respectively. Figure 2 demonstrates each treatment has changes which were a decrement of both Power for a three-time period. From the mean value, it showed that the SM group has the highest value for Power which is 2.27 compared to FR which has the value of 2.19. Based on the current study, it showed that there was a significant effect on both treatment towards agility, power. However, the result also showed that there is no significant difference effect for

both treatments. It can be concluded that SM and FR was the best treatment overall for the futsal players to improve performance after a match.

IV. Discussions

This study examined the effects of SM and FR on agility and power among UiTM Negeri Sembilan futsal players. The findings indicate that both interventions significantly improved agility (p<0.001) and power (p<0.001), with no significant difference between them, confirming their equal effectiveness as recovery strategies.

Agility improvements align with prior research demonstrating that FR enhances flexibility and reduces muscle stiffness, key factors in agility performance [2]. Similarly, sports massage has been shown to improve circulation and muscle relaxation, contributing to agility gains [3]. Power performance also benefited from both interventions, supporting previous findings that foam rolling enhances range of motion and alleviates muscle fatigue [4,5]. Additionally, sports massage aids in reducing muscle soreness and improving recovery, facilitating better power output [6,7].

V. Conclusions

Overall, this study reinforces the effectiveness of both techniques in athletic recovery, suggesting their practical application for optimizing futsal performance. Sport massage and foam rolling both effectively enhanced agility and power, showing no significant differences in outcomes. Both methods are viable strategies for athlete recovery and performance enhancement.

Acknowledgment

The authors thank Universiti Teknologi MARA (UiTM) participants for supporting this study. Special thanks to Syamimi, Husna, Syasya and Hazrul for their assistance in data collection.

References

[1] Barnes, M. F. (2017). Sports massage and its role in performance enhancement and injury prevention. Journal of Sports Medicine, 34(2), 123-135.

[2] Chang, W. (2024). The effects of foam rolling on flexibility and muscle performance. Journal of Sports Science & Medicine, 23(1), 45-53.

[3] Alonso-Calvete, A., Pérez-Muñoz, B., & Jiménez-Reyes, P. (2022). The role of sports massage in muscle recovery and agility performance. International Journal of Athletic Training, 39(3), 187-195.

[4] Welis, R., Mahmutovic, I., & Kowalski, P. (2023). Foam rolling and its impact on athletic performance: A systematic review. Journal of Sports Performance, 31(4), 67-79.

[5] Spyrou, K., Coutts, A. J., Pino-Ortega, J., & Gomez, M. A. (2020). Physical and physiological demands of futsal: Implications for performance and recovery strategies. Sports Biomechanics, 19(5), 613-628.

[6] Romero-Moraleda, B., González-García, J., Cuéllar-Rayo, Á., Balsalobre-Fernández, C., & Morencos, E. (2017). The effects of sports massage on post-exercise recovery and muscle function. International Journal of Sports Medicine, 38(1), 75-81.

[7] Marques, M. C., Pereira, A., Reis, I., & Tillaar, R. (2022). The impact of sports massage on muscle function and athletic performance. Journal of Strength & Conditioning Research, 36(8), 2178-2186.

RESILIENCE TO COGNITIVE FATIGUE BETWEEN ACTION GAMERS AND NON-GAMERS: INSIGHTS INTO FLEXIBILITY AND TASK SWITCHING

Muhammad Hariz Mohd Nizam, Muhammad Ariff Munshir Mohd Pozi, Amelia Natasya Mohd Zaid, Muhammad Haiqal Zianuddin, Muhammad Isamuddin Zani, Muhammad Safiq Saiful Annur, & Muhammad Noor Mohamed*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: muhamad_noor@uitm.edu.my

Keywords: Cognitive Fatigue, Action Video Games, Cognitive Flexibility, Task-switching, Mental Agility

I. Introduction

Cognitive fatigue can impair task performance, yet action video games may bolster resilience by enhancing cognitive flexibility and task-switching skills. This study investigates the cognitive flexibility and task-switching performance of gamers compared to non-gamers and explores the impact of prolonged cognitive tasks on these abilities. Findings align with [1] report that habitual action video game players demonstrate superior cognitive abilities, such as spatial working memory and task-switching performance, compared to non-gamers, despite both groups showing cognitive fatigue under challenging conditions.

II. Methods

Participants were categorized as action video game players (AVGPs, n = 18) or non-gamers (NGs, n = 18) based on self-reported gaming habits and questionnaires. To induce cognitive taxing, gamers were presented with a 45 minute Stroop Test while non-gamers observed a documentary entitled 'A NASA Cassini Mission'. Cognitive flexibility and task-switching abilities were assessed using the Trail Making Test (TMT) and the Number-Letters Test (NLT). The TMT, a well-established tool sensitive to impairments in multiple cognitive domains, involves two parts: Part A assesses basic cognitive processing. At the same time, Part B requires additional cognitive flexibility and the ability to maintain a complex response set, which remains a subject of ongoing debate.

The NLT, as described by [2], is a task-switching paradigm in which participants alternate between categorizing letters and numbers in a predictable sequence. Prolonged task sessions were conducted to measure changes in accuracy, reaction time, and errors, providing insights into the impact of cognitive fatigue and sustained effort and comparing how AVGPs and NGs maintained performance under extended cognitive demands.

III. Results and Discussion

A. Cognitive flexibility and task-switching performance among gamers vs non-gamers.

Based on current study, gamers showed an incremental pattern on both task compared to non-gamers, which only affected in cognitive flexibility rather than task-switching. It was expressed by an increment score between pre-and-post tasks by both groups excelled in cognitive flexibility and task-switching, showcasing quicker adaptation, fewer errors, and superior efficiency in dynamic scenarios. Non-gamers occasionally matched these outcomes, likely due to innate abilities, but overall, gamers consistently outperformed across metrics.

B. To compare the impact of prolonged cognitive task performance on cognitive flexibility between gamers and non-gamers.

Prolonged tasks revealed gamers' resilience to cognitive fatigue as they sustained adaptability and accuracy. In contrast, non-gamers exhibited marked declines, underscoring the potential of gaming to foster enduring mental agility. This has been shown by a slighter bigger amount of mean difference by non gamers (4.39) compared to gamers (1.44) after a cognitive taxing task being administered.

C. To compare the impact of prolonged cognitive task performance on task-switching between gamers and non-gamers.

Gamers exhibited stable task-switching efficiency over extended tasks, with minimal declines as presented in Table 1. In contrast, non-gamers showed significant deterioration in performance although not statistically significant. Results suggest that the gaming experience enhances cognitive endurance and multitasking under sustained cognitive demands.

TABLE I
Paired Samples Correlations Showing the Relationship Between Participants' Pre-test and Post-test TMT Performance for Tasks A, B, And Overall Time

		Mean	SD	t	Sig.
Pair 1	Pre-Post Task A Gamers	1.44	2.68	-2.283	0.036*
Pair 2	Pre-Post Task A Non-gamers	4.39	6.37	-2.922	0.010*
Pair 3	Pre-Post Task B Gamers	6.44	1.65	-16.542	0.001*
Pair 4	Pre-Post Task B Non-gamers	1.5	9.44	-0.674	0.509

IV. Conclusions

Action video game players demonstrated enhanced cognitive flexibility and task-switching skills compared to non-gamers, maintaining performance under prolonged

M.H.M., Nizam, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

cognitive demands. These findings highlight gaming's potential in fostering resilience to cognitive fatigue and sustaining mental agility, offering insights into practical applications for improving cognitive performance in high-demand environments.

Acknowledgment

The authors express gratitude to the students of UiTM Seremban for their valuable participation and support in this research study.

References

[1] Strobach, T., Frensch, P. A., & Schubert, T. (2012). Video game practice optimizes executive control skills in dual-task and task-switching situations. *Acta Psychologica*, 140(1), 13-24. https://pmc.ncbi.nlm.nih.gov/articles/PMC3292256/

[2] Franceschini, S., Gori, S., Ruffino, M., Viola, S., Molteni, M., & Facoetti, A. (2013). Action video games make dyslexic children read better. *Current Biology,* 23(6), 462-466. https://pmc.ncbi.nlm.nih.gov/articles/PMC5816121/

ENHANCING POWER, AGILITY, AND BALANCE THROUGH CORE STRENGTH TRAINING AMONG RACQUET ATHLETES

Nur Dina Adriana Nor'Azman, Adam Linoby, Razif Sazali, Yusandra Md Yusoff, Amrun Haziq, & Muhammad Zulqarnain Mohd Nasir*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: zulqarnain9837@uitm.edu.my

Keywords:Core strength training, Athletic performance, Racquet athletes, Power, Agility, and Balance, Badminton players

I. Introduction

Core strength training is critical for enhancing athletic performance, yet its specific impact on power, agility, and balance among racquet players remains underexplored [1]. This study investigates these acute effects, addressing a gap in research, particularly for university-level badminton athletes. By understanding these relationships, the findings aim to guide targeted interventions for improved performance in racquet sports [2].

II. Methods

This study involved 20 badminton players (ages 18–29, ≥1 year experience) performing core strength exercises: mountain climb (40 sec), plank (1 min), bicycle crunch (15 reps), and medicine ball slams (10 reps), all in 3 sets. Power, agility, and balance were assessed using the standing broad jump, slalom test, and tandem walk test, respectively, to evaluate acute effects [3].

III. Results and Discussion

A. Effect on Power

The experimental group showed a greater improvement in the standing broad jump (15.0 ± 19.4) compared to the control group (6.70 ± 14.6). However, the difference was not statistically significant (t = -1.079, p> 0.05). Despite the lack of significance, improvements from pre- to post-intervention indicate potential benefits of core strength training on power (Figure 1).

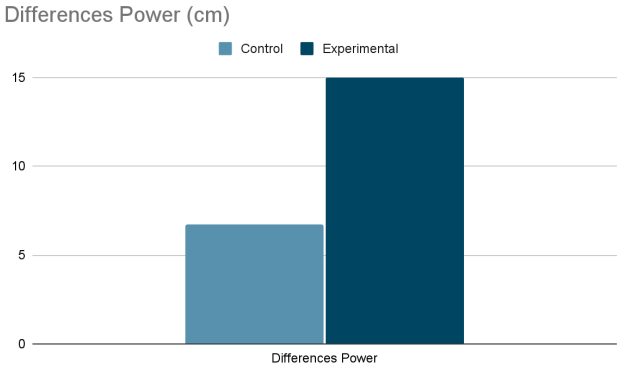


Fig. 1 Differences in power between the control and experimental groups.

B. Effect on Agility

Both groups demonstrated similar changes in slalom test performance, with the control group (-0.77 ± 0.84) and the experimental group (-1.21 ± 0.99). The difference was not significant (t = 1.09, p>0.05). While agility improved in both groups, the intervention did not produce a statistically significant effect (p>0.05; Figure 2).

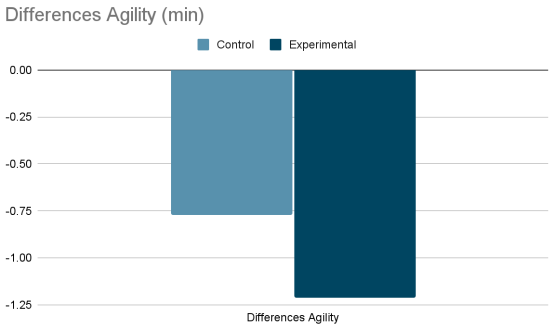


Fig. 2 Difference in agility, with the experimental group showing a larger negative difference than the control group.

C. Effect on Balance

The experimental group showed slightly greater improvement in the tandem walk test (-2.56 ± 2.99) compared to the control group (-0.60 ± 5.29). However, this difference was also not statistically significant (t = 1.02, p>0.05). Improvements in balance performance suggest a positive trend (Figure 3).

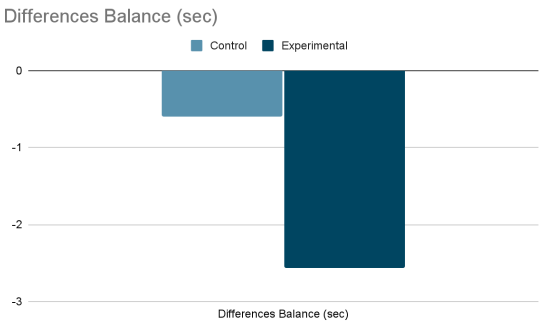


Fig. 3 Differences in balance between the control and experimental groups.

N.D.A., Nor'Azman, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

Core strength training led to observable improvements in power, agility, and balance among racquet players, though the differences were not statistically significant. These findings highlight the potential for core exercises to enhance athletic performance, warranting further investigation with larger sample sizes and longer intervention periods.

Acknowledgment

The authors thank badminton athletes for participation, and Irfan and Amirah for data collection assistance.

References

[1] Ma S et al. (2024). Effect of core strength training on the badminton player's performance: A systematic review & meta-analysis. *PloS one*, 19(6), e0305116. https://doi.org/10.1371/journal.pone.0305116

[2] Sonoda T et al. (2018). Relationship between agility and lower limb muscle strength, targeting university badminton players. Journal of Physical Therapy Science, 30(2), 320-323. https://doi.org/10.1589/jpts.30.320

[3] Yilmaz, N. (2022). Investıgatıon of the effect of ısometrıc core strength traınıng in addıtıon to basketball traınıngs on explosıve power in chıldren aged 9-17. Pedagogy of Physical Culture and Sports, 26(2), 75–82. https://doi.org/10.15561/26649837.2022.0201

EXAMINING THE ROLE OF ANTI-SLIP SOCKS IN ENHANCING BALANCE AND STABILITY AMONG UNIVERSITY FUTSAL PLAYERS

Muhammad Rifdi Mohd Rosli[1], Maisarah Shari[2], Muhamad Noor Mohamed[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Raja Nurul Jannat Raja Hussain[1], & Noor Azila Azreen Md Radzi[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: azila_azreen7172@uitm.edu.my

Keywords: Grip socks, Balance performance, Static balance, Dynamic balance, Futsal players

I. Introduction

Balance is crucial for futsal players, yet the role of anti-slip socks in enhancing balance performance remains underexplored. Agility and dynamic balance were significantly better using grip socks compared to those wearing standard socks [1]. Most existing research focuses on external supports like taping, bracing, and orthoses, with little attention to the potential benefits of grip socks [2]. This research investigates the effect of grip socks on balance among UiTM futsal players, addressing gaps in understanding their potential to improve stability and reduce injury risks, particularly when compared to standard socks.

II. Methods

A quantitative experimental design involved 24 UiTM futsal players (19–24 years). Static and dynamic balance were assessed using the Balance Error Scoring System (BESS) and Star Excursion Balance Test (SEBT). Grip socks with standardized soles were compared to regular socks under randomized conditions. Paired t-tests analyzed performance differences, with significance set at $p<0.05$.

III. Results and Discussion

A. Results Analysis on Static Balance via Balance Error Scoring System

For static balance, the paired samples t-test showed a significant difference between the two types of socks, $t(23) = 9.11$, $p<0.01$. Interestingly, participants showed better stability, as measured by the Balance Error Scoring System (BESS), while wearing standard socks compared to grip socks (Table 1). These findings indicate that grip socks reduce foot slippage, contributing to better static balance performance.

B. Results Analysis on Dynamic Balance via Star Excursion Balance Test

For dynamic balance, there was also a significant difference between standard socks and grip socks, $t(23) = -16.64$, $p<0.01$. Participants performed significantly better with grip socks, scoring lower in standard socks (Table 1). These results suggest that grip socks enhance proprioception and dynamic stability during movement.

This study highlights the role of grip socks as a non-invasive solution to enhance balance performance in futsal players. These findings underscore the enhanced grip and reduced foot slippage offered by grip socks, contributing to better balance and potentially lowering the risk of injuries among futsal players [3].

TABLE I
Comparison Between Standard Socks and Grip Socks on Balance Among UiTM Futsal Players.

Variable		Mean	Std. Deviation	t	Sig
Dynamic Balance	Standard and grip socks	-2.84792	.83854	-16.64	<.001
Static Balance	Standard and grip socks	2.292	1.233	9.11	<.001

IV. Conclusions

The study concludes that anti-slip socks significantly enhance both static and dynamic balance compared to standard socks among UiTM futsal players. These improvements in balance suggest that anti-slip socks could play a crucial role in injury prevention by reducing the likelihood of slips and falls during play.

Acknowledgment

The authors would like to express their gratitude to Universiti Teknologi MARA Negeri Sembilan Branch, Putra Hazrick and Fitri for their collaboration and support in the data collection.

References

[1] Jeong, et al. (2022). Effect of Non-Slip Socks-Induced Foot Stability on Agility in Healthy Elderly Women. Asian Journal of Kinesiology, 24(2), 12–18. https://doi.org/10.15758/ajk.2022.24.2.12

[2] Pederson, T. S., et al. (2002). The effect of ankle taping on proprioception and range of motion of ankle inversion. Perceptual and Motor Skills, 94(2), 566–568. https://doi.org/10.2466/pms.2002.94.2.566

[3] Apps, A., et al. (2022). Grip socks improve slalom course performance and reduce in-shoe foot displacement of the forefoot in male and female sports players. Journal of Sports Sciences, 40(12), 1351–1359. https://doi.org/10.1080/02640414.2022.2080163

M.R.M., Rosli, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IMPACT OF BLOOD FLOW RESTRICTION TRAINING ON SPRINT PERFORMANCE AND FATIGUE IN FUTSAL PLAYERS

Wan Muqhriz Yunus, & Nurul Ain Kasim*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: nurulain755@uitm.edu.my

Keywords: Blood flow restriction, Repeated sprint test, Futsal athletes, Fatigue index, Speed consistency

I. Introduction

Blood Flow Restriction (BFR) training offers a low-load alternative to high-intensity exercises, potentially enhancing athletic performance while minimizing overuse injuries. Despite its growing popularity, its impact on speed and fatigue index in high-intensity sports like futsal remains underexplored. This study examines the acute effects of BFR on the fatigue index and sprint performance, addressing gaps in understanding its efficacy for intermittent sports.

II. Methods

Twenty healthy male futsal athletes participated, free of injuries or chronic diseases. Two trials were conducted: one with BFR applied during Yo-Yo IR1 training and the other as a control without BFR. After training, athletes performed repeated sprint tests. Speed was measured using Smartspeed timing gates, and the fatigue index was calculated using the power output method as described in the Running-based Anaerobic Sprint Test (RAST). Results were statistically analyzed.

III. Results and Discussion

A. Speed

Sprint speeds were significantly lower in the BFR condition (4.39 ± 0.30) compared to the non-BFR condition (4.93 ± 0.51), as demonstrated by an independent sample t-test. This finding indicates that BFR training is more effective for enhancing sprint performance, with BFR potentially impairing speed during high-intensity intermittent activities.

B. Fatigue Index

The fatigue index was significantly lower during BFR training (0.96 ± 0.51) compared to non-BFR training (1.15 ± 0.70), as demonstrated by an independent sample *t*-test. This suggests that athletes experienced a reduced rate of performance decline under non-BFR conditions.

TABLE I
Independent Samples t-test of Average Speed and Fatigue Index Between BFR and Non-BFR Groups.

Variables	Group	N	Mean (SD)	t	df	P value
Average Speed	BFR	20	4.388 (0.302)	- 4.055	38	0.001
	NON-BFR	20	4.930 (0.511)			
Fatigue Index	BFR	20	0.96 (0.51)	- 0.963	38	0.342
	NON-BFR	20	1.15 (0.70)			

IV. Conclusions

This study highlights that Blood Flow Restriction (BFR) training effectively enhances sprint performance while increasing fatigue index during high-intensity activities [1,2,3]. BFR offers a promising alternative to traditional training methods, optimizing speed performance for futsal athletes. These findings support the utility of BFR in improving performance metrics in intermittent, high-intensity sports like futsal [4].

Acknowledgment

The authors thank the futsal athletes from Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for their participation and Nur Syafiqah Azwarul Nizam for assisting with data collection.

References

[1] Ueno, T., Ishikawa-Takata, K., & Moritani, T. (2023). Blood flow restriction does not impair performance but induces muscle excitation during sprinting. Journal of Applied Physiology. https://pmc.ncbi.nlm.nih.gov/articles/PMC10381307/

[2] Mitchell, C. J., Churchward-Venne, T. A., & Phillips, S. M. (2020). The role of blood flow restriction training in athletic performance. Journal of Applied Physiology, 129(2),287–298. https://journals.physiology.org/doi/full/10.1152/japplphysiol.00982.2020

[3] MacKenzie, B. (n.d.). Running-based anaerobic sprint test (RAST). BrianMac Sports Coach. Retrieved January 21, 2025, from https://www.brianmac.co.uk/rast.htm

[4] García-Sillero, M., Maroto-Izquierdo, S., Galván-García, M., Benitez-Porres, J., Vargas-Molina, S., & Jurado-Castro, J. M. (2023). Acute effects of blood flow restriction training on movement velocity and neuromuscular signal during the back squat exercise. Journal of Clinical Medicine, 12(14), Article 4824. https://doi.org/10.3390/jcm12144824

W.M., Yunus, & N. A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[5] Patterson, S. D., Hughes, L., Warmington, S., Burr, J., Scott, B. R., Owens, J., Abe, T., Nielsen, J. L., Libardi, C. A., Laurentino, G., Neto, G. R., Brandner, C., Martin-Hernandez, J., & Loenneke, J. (2019). Blood flow restriction exercise: Considerations of methodology, application, and safety. Frontiers in Physiology, 10, Article 533. https://doi.org/10.3389/fphys.2019.00533

W.M., Yunus, & N. A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE DYNAMICS OF PHYSICAL ACTIVITY AND HAPPINESS INDEX: INSIGHTS FROM MALAYSIAN UNIVERSITY STUDENTS

Ku Ahmad Safwan Ku Ahmad Romzi, & Wahidah Tumijan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wahidah06@uitm.edu.my

Keywords: Physical activity, Happiness index, Mental well-being, University students, Survey research

I. Introduction

This study explores the relationship between physical activity and happiness among UiTM Seremban 3 students. While prior research highlights their correlation, the temporal and causal dynamics remain understudied [1]. This study uses quantitative research design and used two questionnaires which are International Physical Activity Questionnaire (IPAQ) to measure the physical activity of the UiTM Seremban 3 students and Oxford Happiness Questionnaire (OHQ) to measure their happiness index. Addressing this gap can offer valuable insights into how increased physical activity impacts UiTM Seremban 3 student's happiness level.

II. Methods

The research used qualitative research design The questionnaire was distributed online using Google Form to all the respondents incorporating the International Physical Activity Questionnaire (IPAQ) [4] to measure physical activity level and to get physical activity total for variables, and the Oxford Happiness Questionnaire (OHQ) [5] to assess happiness level and to get the mean of the UiTM Seremban 3 student's happiness index. A total of 300 UiTM Seremban 3 students participated. Descriptive analysis and statistical correlation were applied to determine the relationship between physical activity and happiness levels.

III. Results and Discussion

A. Result for Physical Activity level

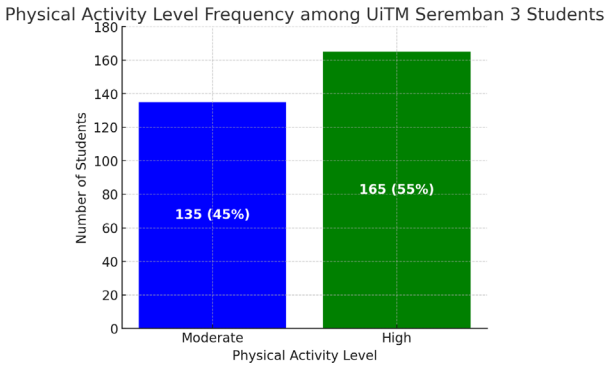


Fig. 1 Physical Activity Level Frequency among UiTM Seremban 3 Students. 45% moderate and 55% high on physical activity level.

Most participants reported students involved in high physical activity and happiness which is 165 students, indicating a common ground for student well-being. The findings indicate that 55% (165 students) of students had high physical activity levels, while 45% (135 students) exhibited moderate activity, with no reports of low activity. Higher physical activity is strongly linked to greater happiness. Strong positive correlation between higher levels of physical activity and increased happiness [1] and Engaging in regular moderate physical activity reported significantly higher levels of happiness and life satisfaction compared to less active individuals [2].

B. Result for Happiness Index

TABLE I
Result for Happiness index

Descriptive	
N	300
Missing	2
Mean	4.07
Median	4.07
Standard Deviation	0.952
Minimum	1.48
Maximum	6.00

Happiness levels were predominantly moderate, the average happiness index score among participants was 4.07, with a standard deviation of 0.95. This suggests that most people have a strong happiness index, but there's a wide range in how happy the students are.

C. Result For Relationship Between Physical Activity and Happiness Index

Research indicates that low levels of happiness among students are associated with increased depression, heightened stress, and reduced physical activity [3]. and a strong positive correlation (Pearson coefficient 0.989) was observed between physical activity and happiness. These results suggest that significant students who engage in higher levels of physical activity tend to report greater happiness, reinforcing existing literature on the benefits of an active lifestyle (Figure 2).

K.A.S.K.A, Romzi, & W., Tumijan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

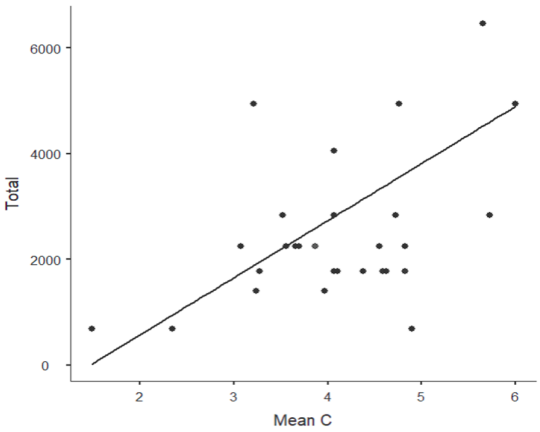


Fig. 2 The Correlation Between Physical Activity and Happiness Index among UiTM Seremban 3 Students

IV. Conclusions

This study confirms a strong positive correlation between physical activity and happiness among UiTM Seremban 3 students. The findings highlight the importance of promoting an active lifestyle to enhance well-being. Future research should explore causal relationships using longitudinal or experimental designs to determine whether increased physical activity directly contributes to higher happiness levels.

Acknowledgment

The authors express gratitude to the participants who completed the questionnaire and to fellow friends for their invaluable support in this research.

References

[1] Zhang, Z., & Chen, W. (2019). A systematic review of the relationship between physical activity and happiness. Journal of Happiness Studies, 20(4), 1305–1322.
[2] Gerber, M., Pühse, U., Schindler, C., & Baar, P. (2019).
[3] The association between physical activity and happiness: Cross-national evidence from 24 countries. International Journal of Environmental Research and Public Health, 16(12), 2084.
[4] Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J. F., & Oja, P. (2003). International Physical Activity Questionnaire: 12-country reliability and validity. Medicine & Science in Sports & Exercise, 35(8), 1381–1395.
[5] Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire: A compact scale for the measurement of psychological well-being. Personality and Individual Differences, 33(7), 1073–1082.

EXPLORING THE RELATIONSHIP BETWEEN STRENGTH AND FLEXIBILITY IN MIDDLE-AGED ADULTS

Wan Mohd Syafiq, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: yusandra@uitm.edu.my

Keywords: Hand-grip strength, Flexibility, Middle-aged adults, Physical fitness, Correlation analysis

I. Introduction

Hand-grip strength and flexibility are key markers of physical health in middle-aged adults. Despite their importance, limited research explores their correlation, especially in diverse populations and real-world settings. This study addresses gaps by examining their interrelationship and potential combined impact on health outcomes, contributing to a deeper understanding of functional independence and aging.

II. Methods

A stratified random sample of 23 middle-aged adults (40–60 years) was selected at UiTM Seremban 3. Hand-grip strength was measured using a digital dynamometer, while flexibility was assessed with the sit-and-reach test. Pearson's and Spearman's correlation analyses were conducted to determine the relationship between hand-grip strength and flexibility.

III. Results and Discussion

A. Hand-Grip Strength On Middle-Aged Adults

The mean hand grip strength was 23.4 kg, representing the average performance of participants. A standard deviation of 6.71 kg indicated moderate variability in hand grip strength among the group (Table 1).

TABLE I
Descriptive Statistic of Hand-Grip Strength

Variable	Mean	SD
Hand-Grip Strength	23.4	6.71

B. Flexibility For Middle-Aged Adults.

The average score for the sit and reach test was 19.8 cm, showing the typical flexibility level of the participants. The standard deviation was 6.44 cm, which means the scores varied by about 6.44 cm from the average, indicating moderate differences in flexibility among the participants (Table 2).

TABLE II
Descriptive Statistic of Flexibility

Variable	Mean	SD
Flexibility	19.8	6.44

C. Correlation Of Hand-Grip Strength Towards Flexibility In Middle-Aged Adults.

The correlation between hand-grip strength and flexibility (sit and reach) is very weak (Spearman's rho = 0.158). The p-value (0.471) shows that this weak correlation is not significant, meaning the relationship might just be due to chance. No strong connection between hand-grip strength and flexibility in this study (Table 3).

TABLE III
Spearman Correlation Correlation Of Hand-Grip Strength Towards Flexibility In Middle-Aged Adults

		Flexibility
Hand-Grip strength	Spearman' rho	0.158
	df	21
	p-value	0.471
	N	23

IV. Conclusions

There was almost no connection between handgrip strength and flexibility (r = 0.158, p = 0.471). This means strength and flexibility are separate abilities and improving one doesn't automatically improve the other. Both should be trained separately for better overall fitness.

Acknowledgment

The authors thank the communities of Universiti Teknologi MARA, Seremban 3 for their invaluable support.

References

[1] Bohannon, R. W. (2019). Considerations and practical applications for assessing hand-grip strength in older adults. Journal of Geriatric Physical Therapy, 42(2), 123-128.
[2] Vaishya, R., Vijay, V., & Agarwal, A. (2024). The role of hand-grip strength as a biomarker for overall health outcomes in adults: A narrative review. Journal of Health, Population and Nutrition, 43(1), Article 10.

THE EFFECTS OF PLYOMETRIC WARM-UP ON SPRINT PERFORMANCE IN FIELD HOCKEY ATHLETES

Aqmar Farhana Najwa Ahmad Fuad[1], Muhamad Noor Mohamed[1], Noor Azila Azreen Md Radzi[1], Muhamad Safiq Saiful Annur[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Raja Nurul Jannat Raja Hussain[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: nuruljannat@uitm.edu.my

Keywords: Plyometric warm-up, Sprint performance, Field hockey, Box height variation, Athletic performance optimization

I. Introduction

Plyometric warm-ups are generally thought to be effective for enhancing sprint performance [1], yet their application in sport-specific contexts like field hockey remains underexplored. This study investigates the impact of different box height jumps on sprint performance over time, addressing critical gaps in sport-specific plyometric strategies to aid coaches in optimizing athlete sprinting ability [2].

II. Methods

Eighteen athletes, divided into three groups based on box height (low height, high height, control) were chosen based on specific criteria relevant to the research objectives. The participants performed 30m sprints after a standardized warm-up and depth jumps at 35cm, 50cm, or no jump (control). Sprint performance was measured at baseline and retested 5 seconds, 5 minutes, and 10 minutes post-jumps.

III. Results and Discussion

The findings (Figure 1) suggest that depth jumps, regardless of box height, significantly enhance sprint performance over time ($p<0.001$), supporting previous research on post-activation performance enhancement (PAPE) [3]. However, the lack of significant differences between groups ($p = 0.277$) indicates that box height may not be a critical factor in short-term sprint gains.

Post hoc analysis revealed that while immediate post-jump performance did not significantly improve ($p>0.05$), sprint times significantly decreased at 5 minutes ($p<0.01$) and 10 minutes ($p<0.001$), suggesting that an optimal recovery period is necessary for maximal sprint gains. This aligns with studies indicating that PAPE effects peak after a short recovery rather than immediately post-exercise [4].

These results highlight the importance of proper timing in implementing depth jumps before sprinting, particularly in pre-competition warm-ups. Future research should investigate individualized recovery times to optimize PAPE effects for different athlete populations.

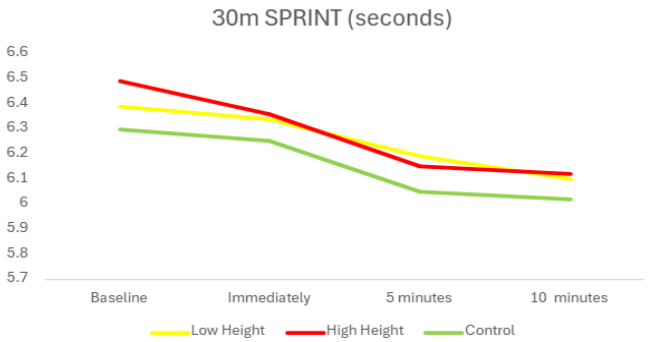


Fig. 1 A line graph shows speed across time between groups comparison.

IV. Conclusions

Plyometric warm-ups effectively enhance sprint performance over time, however, box height does not significantly impact results. Customizing warm-up timing to align with athletic activities could maximize performance benefits in field hockey.

Acknowledgment

The authors thank the U-17 players from 4 State Hockey Club, Kuala Lumpur, Malaysia, for their participation and Arif Iskandar for assistance with data collection.

References

[1] McBride, J. M., Nimphius, S., & Erickson, T. M. (2005). The acute effects of heavy-load squats and loaded countermovement jumps on sprint performance. Journal of Strength and Conditioning Research, 19(4), 893–897.

[2] Karakoc, B., Akalan, C., Alemdaroglu, U., & Arslan, E. (2012). Acute effects of plyometric warm-up with different box heights on sprint and agility performance in national-level field hockey athletes. Isokinetics and Exercise Science, 20(2), 161–165.

[3] McGowan, C. J., Pyne, D. B., Thompson, K. G., & Rattray, B. (2015). Warm-up strategies for sport and exercise: Mechanisms and applications. Sports Medicine, 45(11), 1523–1546.

[4] Wilson, J. M., Duncan, N. M., Marin, P. J., Brown, L. E., Loenneke, J. P., & Wilson, S. M. C. (2013). Meta-analysis of postactivation potentiation and power: Effects of conditioning activity, volume, gender, rest periods, and training status. Journal of Strength and Conditioning Research, 27(3), 854–859.

COMPARATIVE ANALYSIS OF COLD AND HOT WATER THERAPIES ON AGILITY AND POWER METRICS IN COLLEGIATE FUTSAL ATHLETES

Nur Fatin Syamimi Parikh, Muhamad Noor Mohamed, Noor Azila Azreen, Raja Nurul Jannat Raja Hussein, Nurul Ain Abu Kassim, Muhamad Aizzat Adnan, & Mardiana Mazaulan*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: mardiana9840@uitm.edu.my

Keywords: Cold-water therapy, Hot-water therapy, Muscle performance, Futsal players, Recovery strategies

I. Introduction

This study investigates the effects of cold-water therapy (CWT) and hot-water therapy (HWT) on muscle performance in UiTM Negeri Sembilan futsal players. By evaluating their influence on agility and power, the research seeks to clarify the long-term effects of CWT and HWT on muscle contractile properties, contributing to strategies for optimizing athletic performance [1].

II. Methods

This study used quasi - experimental design involved 10 male UiTM Negeri Sembilan futsal players aged 18–25 years, meeting strict eligibility criteria. Cold-water therapy (15°C, 15 min) [2] and hot-water therapy (38–40°C, 15 minutes) [3] were administered. Data were collected before treatment, immediately after treatment, and 72 hours post-treatment. Muscle performance was assessed using agility T-tests [4] and broad jump measurements [5]. Participants had no lower limb injuries in the past six months.

III. Results and Discussion

A. Outcome on Agility & Power

The data in Table I show significant effects on agility (p = 0.006, η^2 = 0.042) and power (p<0.001, η^2 = 0.050) across the two time points, indicating that both CWT and HWT interventions influenced these outcomes.

TABLE I
Inferential Effects of Cold-Water and Hot-Water Therapy on Agility and Power

Effect	p	η^2
Agility	0.006	0.042
Power	<0.001	0.050

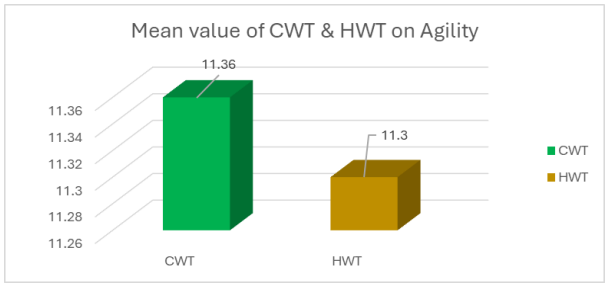


Fig. 1 Mean value of CWT and HWT on Agility

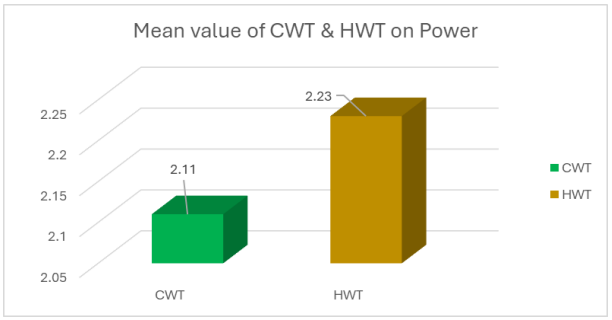


Fig. 2 Mean value of CWT and HWT on Power

Figure 1 illustrates changes in each treatment, showing a decline over two time series. The mean (M) values indicate that CWT resulted in the highest agility score at 11.36, while HWT had a score of 11.3. Figure 2 illustrates changes in each treatment, showing an increase over two time series. The mean values indicate that HWT resulted in the highest power score at 2.23, while CWT had a score of 2.11.

B. CWT and HWT on Agility

Cold-water therapy significantly enhanced agility performance in futsal players, as evidenced by a main effect (F = 9.72, p = 0.006). The moderate effect size (η^2 = 0.101) indicates a meaningful impact of cold-water immersion on agility. However, participant feedback revealed no perceived difference in agility between treatments (F = 0.348, p = 0.348), suggesting both therapies were similarly effective in agility recovery.

Hot-water therapy also had a significant effect on agility performance (F = 26.84, p<0.001) with a large effect size (η^2 = 0.292). However, its effects did not differ significantly

from those of cold-water therapy, indicating that both treatments contribute similarly to agility recovery.

C. CWT and HWT on Power

Broad jump performance significantly improved after cold-water therapy (F = 26.84, p<0.001) with a large effect size (η^2 = 0.292), suggesting its effectiveness in enhancing lower-body power recovery. The interaction effect (F = 7.78, p = 0.012) indicates that power gains increased over time, underscoring its potential as a post-exercise recovery strategy.

Hot-water therapy did not significantly improve broad jump performance (F = 2.37, p = 0.141), with a small effect size (η^2 = 0.050), indicating minimal impact on power recovery. These findings suggest that while hot-water therapy supports agility recovery, it may be less effective than cold-water therapy in enhancing power performance.

D. Comparison CWT & HWT

Cold-water therapy demonstrated greater improvements in both agility and broad jump performance. While both therapies were effective, no significant differences were observed, indicating comparable efficacy in improving muscle performance.

IV. Discussions

This study found that CWT and HWT both produced significant improvements in agility and power among UiTM Negeri Sembilan futsal players, with no discernible difference in effectiveness between the two interventions. These results, supported by evidence that CWT reduces muscle stiffness and fatigue and that HWT enhances circulation and muscle relaxation, underscore the suitability of both methods as effective recovery strategies. Consequently, practitioners can employ either CWT or HWT to optimize athletic performance in futsal.

References

[1] Machado, A. F., Ferreira, P. H., Micheletti, J. K., de Almeida, A. C., Lemes ÍR, Vanderlei, F. M., Netto Júnior, J., & Pastre, C. M. (2016). Can water temperature and immersion time influence the effect of cold water immersion on muscle soreness? A systematic review and meta-analysis. Sports Medicine, 46(4), 503–514.

[2] Li, Y., Wang, X., Chen, Z., & Wang, Y. (2023). Effects of cold water immersion after exercise on fatigue recovery: A meta-analysis. Frontiers in Physiology, 14, 9896520.

[3] Brophy-Williams, N., Landers, G., & Wallman, K. (2023). Effect of hot water immersion on acute physiological responses following resistance exercise. Frontiers in Sports and Active Living, 5, 1035423.

[4] Semenick, D. (1990). Tests and measurements: The T-test. National Strength & Conditioning Association Journal, 12(1), 36-37.

[5] Davis, D. S., Quinn, C. J., Whiteman, C. T., Williams, J. D., & Young, C. R. (2000). Concurrent validity of four clinical tests used to measure hamstring flexibility. Journal of Strength and Conditioning Research, 22(2), 583-588.

EVALUATING THE SUSTAINED EFFECTS OF ACTION GAMING ON VISUOSPATIAL PLANNING AND COGNITIVE FLEXIBILITY UNDER COGNITIVE FATIGUE

Muhammad Haiqal Zianuddin, Amelia Natasya Mohd Zaid, Muhammad Ariff Munshir Mohd Pozi, Muhammad Hariz Mohd Nizam, Muhammad Isamuddin Zani, Nurul Ain Abu Kassim, & Muhamad Noor Mohamed*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: muhamad_noor@uitm.edu.my

Keywords: Video Games, Cognitive Fatigue, Problem-solving Performance, Cognitive Resilience, Gamers

I. Introduction

This study explores the cognitive mechanisms enabling action video game players to maintain problem-solving under cognitive fatigue, addressing gaps in cognitive benefits, causal evidence, and mechanisms. A comparative analysis with non-gamers highlights differences in cognitive resilience and problem-solving performance, offering insights into gaming's potential role in enhancing cognitive function.

II. Methods

This quasi-experimental pre- and post-test study involved 30 participants (n = 30; 18–30 years, Seremban), split into 15 gamers (n = 15; <7 hours gaming per week) and 15 non-gamers (n = 15, <1 hour gaming per week). Cognitive performance was assessed using the Tower of London task pre- and post-intervention, where several values were noted to indicate visuospatial planning and cognitive flexibility. The values noted are average moves and problem solving time [1]. To induce cognitive fatigue, gamers performed the Stroop test for 45 minutes and non-gamers engaged in a cognitive-neutral activity by watching "NASA's Cassini Mission" documentary, ensuring controlled intervention contrasts. Paired Sample T-test was conducted afterwards to show effect of time and to differentiate effect between groups, magnitude of mean difference was observed afterwards. Statistical significance was set at (p<0.05).

III. Results and Discussion

A. *Visuospatial Planning in Gamers and Non-gamers Under Cognitive Fatigue*

Although both groups show an increment of moves after cognitive fatigue induced, gamers exhibited superior visuospatial planning by having less time to solve problems (13634.78 ms) compared to non-gamers (13985.75), however the difference between pre-and-post is slightly higher for gamers (3705.11) compared for non-gamers (876.01). Figure 1 further illustrates the difference.

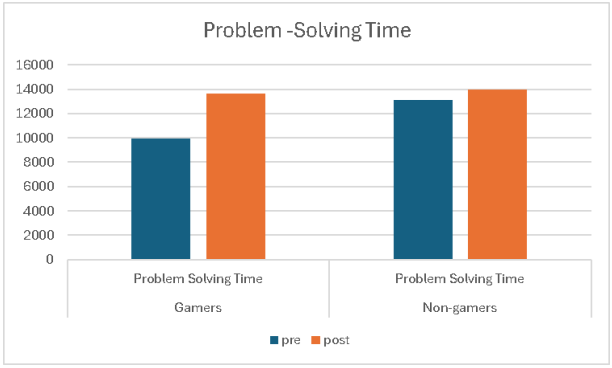


Fig. 1 Problem Solving Time (*ms*).

This indicates that their working memory fluctuated due to cognitive fatigue but still composed to solve problems faster compared to non-gamers [2].

B. *Comparative Problem-Solving Performance: Gamers vs. Non-Gamers*

Gamers significantly outperformed non-gamers in task efficiency (gamers average move = 2.80-3.08, non-gamers = 5.34-5.79) but not reaction time (gamers = 0.03-0.02, non-gamers = 0.009-0.001) after cognitive fatigue. While non-gamers exhibited a steeper decline, Gamers maintained high accuracy. In terms of faster completion times ,non-gamers excel in this, demonstrating cognitive resilience in gamers, but hasty moves by non-gamers. However, some gamers displayed overconfidence, occasionally making premature errors [3]. Figure 2 and 3 further illustrate these.

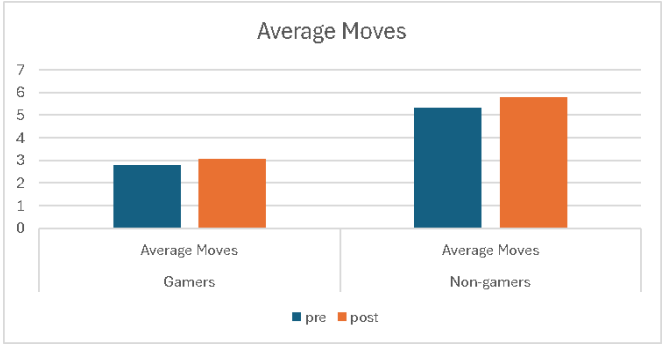
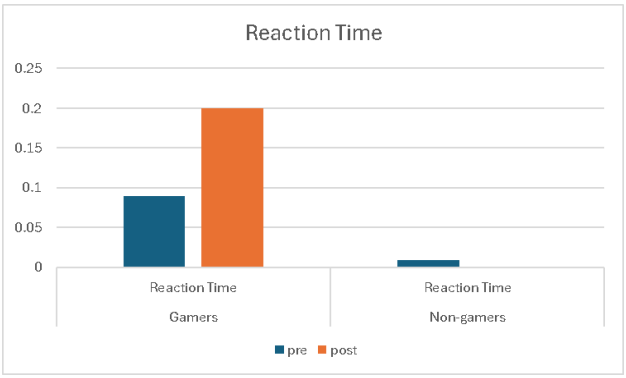


Fig. 2 Average Moves to Solve Problems (number of moves).



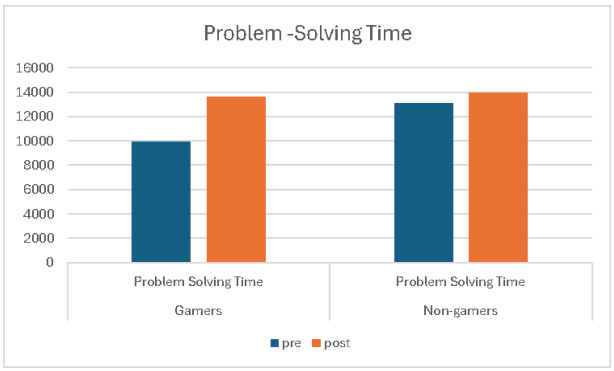


Fig. 1 Problem Solving Time (*ms*).

This indicates that their working memory fluctuated due to cognitive fatigue but still composed to solve problems faster compared to non-gamers [2].

C. *Comparative Problem-Solving Performance: Gamers vs. Non-Gamers*

Gamers significantly outperformed non-gamers in task efficiency (gamers average move = 2.80-3.08, non-gamers = 5.34-5.79) but not reaction time (gamers = 0.03-0.02, non-gamers = 0.009-0.001) after cognitive fatigue. While non-gamers exhibited a steeper decline, Gamers maintained high accuracy. In terms of faster completion times ,non-gamers excel in this, demonstrating cognitive resilience in gamers, but hasty moves by non-gamers. However, some gamers displayed overconfidence, occasionally making premature errors [3]. Figure 2 and 3 further illustrate these.

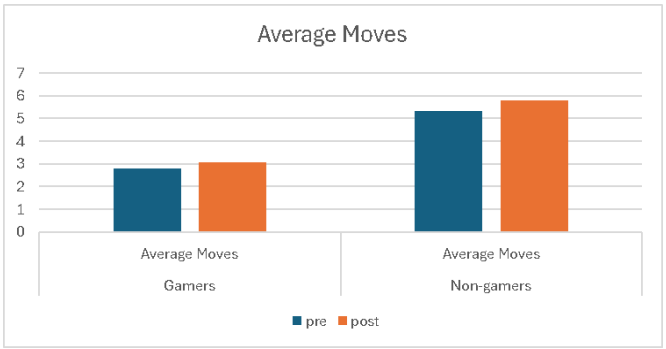


Fig. 2 Reaction Time (*ms*)

D. *Statistical Analysis of Performance after Cognitive Fatigue*

The statistical results below confirm significant differences in problem-solving efficiency, reaction speed, and accuracy between gamers and non-gamers, reinforcing gaming's potential cognitive benefits. Statistical significance can be seen for average moves made and problem solving time, but nor reaction time within both groups as depicted in Table 1.

TABLE I
DIFFERENCES BETWEEN PRE-POST GAMERS AND NON-GAMERS

Metric	Non-Gamers	Sig.	Gamers	Sig.
Average Moves Made	-0.46 ± 0.69	0.02*	-0.28 ± 0.45	0.03*
Problem-solving Time (*s*)	-876.00 ± 653.45	0.01*	-3705.11 ± 1058.08	0.01*
Norm. Reaction Time (*ms*)	0.009 ± 0.01	0.08	0.05 ± 0.09	0.08

E. *Impact of Cognitive Fatigue on Endurance*

Fatigue affected non-gamers more severely, causing slower reaction times and increased errors. Gamers exhibited higher cognitive endurance, maintaining their problem-solving efficiency despite fatigue. These findings suggest that gaming may train the brain to sustain optimal cognitive performance under prolonged cognitive demands.

IV. CONCLUSIONS

This study revealed that gamers possess enhanced cognitive abilities that improve problem-solving under fatigue, but resilience to fatigue-related decline remains comparable to non-gamers. These findings emphasize the need to explore mechanisms linking gaming expertise and fatigue management, contributing to understanding cognitive endurance and its practical implications.

ACKNOWLEDGMENT

The authors would like to express their gratitude to Universiti Teknologi MARA Negeri Sembilan Branch participants for supporting this study. Special thanks to Isamuddin Zani, Ariff Munshir, Muhammad Hariz, and Amylia Natasya for their assistance in data collection.

REFERENCES

[1] Unterrainer, J. M., Rahm, B., Kaller, C. P., Leonhart, R., Quiske, K., Hoppe-Seyler, K., ... & Funke, J. (2004). Planning abilities and the Tower of London: Is this task measuring a discrete cognitive function? *Journal of Clinical and Experimental Neuropsychology,* 26(6), 770-786. https://pubmed.ncbi.nlm.nih.gov/15370380/

[2] Baniqued, P. L., Lee, H., Voss, M. W., Basak, C., Cosman, J. D., Desouza, S., ... & Kramer, A. F. (2013). Video games and board games: Effects of playing practice on cognition. *Frontiers in Psychology,* 4, 626. https://www.researchgate.net/publication/369558241_Video_games_and_board_games_Effects_of_playing_practice_on_cognition

[3] Lundgren, T., Kenttä, G., & Pihlstedt, P. (2020). Comparison of psychological and cognitive characteristics between elite and non-elite athletes: A focus on cognitive functions. *International Journal of Environmental Research and Public Health*, 17(18), 6756. https://pmc.ncbi.nlm.nih.gov/articles/PMC7369982/

ANALYSIS OF BACKHAND SERVE ERROR IN MALE DOUBLES BADMINTON ATHLETES BETWEEN WINNING AND LOSING TEAM AT THE YONEX DUTCH JUNIOR INTERNATIONAL 2024

Nurul Zarith Alia Mat Yusof[1], Muhamad Safiq Saiful Annur[1], Raja Nurul Jannat Raja Hussain[1], Muhamad Noor Mohamed[1], Mardiana Mazaulan[1], Mohd Aizzat Adnan[1], Nurul Ain Abu Kassim[1], Maisarah Shari[2], & Noor Azila Azreen Md Radzi[1]*

[1]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA*

[2]*Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Shah Alam Campus, Selangor, MALAYSIA*

*Corresponding author: azila_azreen712@uitm.edu.my

Keywords: Backhand Serve, Badminton, Male Doubles, Serve Errors, YONEX Dutch Junior International 2024

I. Introduction

The backhand serve is a critical skill in badminton doubles, where precision significantly impacts match outcomes [1]. Despite its importance, limited research examines serve errors in junior-level competitions, particularly in male doubles [2]. This study analyses backhand serve errors at the YONEX Dutch Junior International 2024, identifying error types and comparing their occurrence between winning and losing teams.

II. Methods

Fifty-five male doubles badminton matches from the YONEX Dutch Junior International 2024 were analysed. Video recordings from YouTube were used to scrutinise backhand serve errors, including too high, undirected, fault, out, and stuck serves. Data were systematically documented in SPSS, with independent sample t-tests applied to compare errors between winning and losing teams. The analysis focused on identifying critical serve errors that influence match outcomes, ensuring detailed insights into serve performance during competitive play.

III. Results and Discussion

Undirected serves were the most frequent error, occurring up to 18 times in the analysed matches. This error, caused by improper grip, stance, or psychological stress, allowed opponents to easily return the shuttle and gain an advantage [3]. The second most frequent error was too high serves, often resulting from misjudged flick serves, which gave opponents an immediate attacking opportunity [4]. Both errors highlight the need for technical precision and mental composure to reduce unforced mistakes during matches.

The analysis revealed a significant difference in fault errors between winning and losing teams (p = 0.028), with losing teams committing more faults (1.07 ± 0.66) compared to winning teams (0.80 ± 0.62). This occurred due to a lack of experience among junior players, who struggled with technical consistency under pressure [5]. Without sufficient exposure to competitive scenarios, players were more prone to making serve faults, highlighting the need for targeted training to improve serve accuracy and mental resilience.

A significant difference was also found in stuck errors (p<0.001), with losing teams making more stuck errors (1.38 ± 0.78) than winning teams (0.67 ± 0.61). This was primarily due to emotional stress and limited competitive exposure, as players under pressure often failed to execute serves effectively [6]. The inability to manage stress during critical moments led to poor serve execution, emphasising the importance of mental training to enhance emotional control and performance consistency.

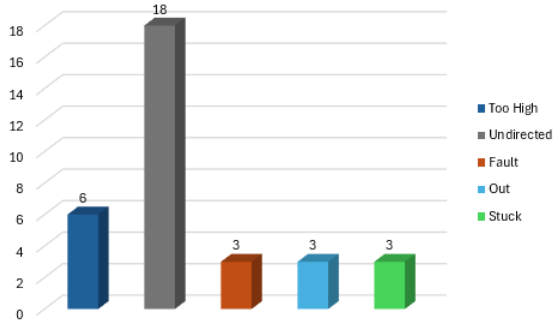


Fig. 1 Frequency variable backhand serve error

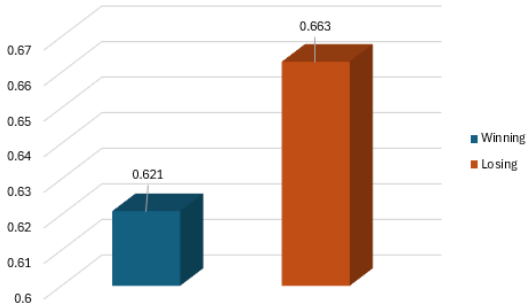


Fig. 2 Comparison mean between winning and losing on fault error

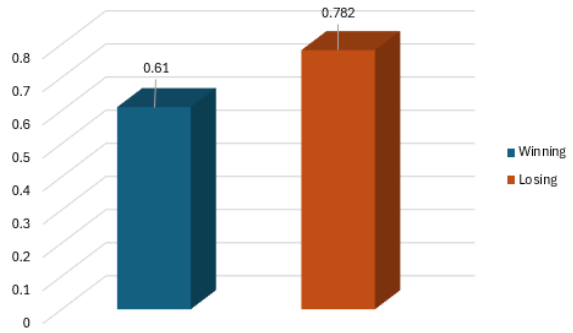


Fig. 3 Comparison mean between winning and losing on average stuck error

IV. Conclusions

Stuck and fault errors significantly influenced match outcomes in male doubles badminton at the YONEX Dutch Junior International 2024. Losing teams exhibited higher frequencies of these errors, with stuck and fault errors showing statistical significance. These results emphasize the critical need to address specific serve errors for improved performance, highlighting the importance of technical precision and mental resilience in competitive play.

Acknowledgment

The authors thank Universiti Teknologi MARA (UiTM) participants for supporting this study.

References

[1] Indarto, A. V., Nugroho, S., & Widiyanto, R. S. (2023). Analysis of backhand service badminton doubles athletes in the championship in Banyumas. International Journal of Physical Education, Sports, and Health, 10, 99-103.

[2] Duncan, M. J., Chan, C. K., Clarke, N. D., Cox, M., & Smith, M. (2017). The effect of badminton-specific exercise on badminton short-serve performance in competition and practice climates. European Journal of Sport Science, 17(2), 119-126.

[3] Murray, S., James, N., Hughes, M. D., Perš, J., Mandeljc, R., & Vučković, G. (2016). Effects of rule changes on physical demands and shot characteristics of elite-standard men's squash and implications for training. Journal of sports sciences, 34(23), 2170-2174.

[4] Faude, O., Meyer, T., Rosenberger, F., Fries, M., Huber, G., & Kindermann, W. (2007). Physiological characteristics of badminton match play. European journal of applied physiology, 100, 479-485.

[5] Mackenzie, R., & Cushion, C. (2013). Performance analysis in football: A critical review and implications for future research. Journal of sports sciences, 31(6), 639-676.

[6] Fahimi, F., & VaezMousavi, M. (2011). Physiological patterning of short badminton serve: a psychophysiological perspective to vigilance and arousal. World Applied Sciences Journal, 12(3), 347-353.

THE ACUTE BLOOD FLOW RESTRICTION AND ITS IMPACT ON RATE OF PERCEIVED EXERTION AMONG UITM SEREMBAN 3 STUDENTS

Nur Liyana Aqilah Zulkefli, & Nurul Ain Abu Kasim*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: nurulain755@uitm.edu.my

Keywords: Blood flow restriction, Rate of perceived exertion, Central fatigue, Endurance performance, Collegiate students

I. Introduction

This study explores the effects of acute blood flow restriction (BFR) training on the rate of perceived exertion (RPE) during the Yo-Yo Intermittent Recovery Test. It focuses on evaluating and comparing RPE outcomes among UiTM Seremban 3 students, with and without BFR application, to enhance understanding of BFR's impact on physical performance and exertion perception.

II. Methods

This experimental study assessed the acute effects of BFR on the RPE during the Yo-Yo Intermittent Recovery Test Level 1. Participants performed 20 m shuttle runs with progressively increasing speeds under BFR and non-BFR conditions. BFR was applied using blood pressure cuffs on the upper thighs, and RPE was recorded during and after the test.

III. Results and Discussion

A. Rate of Perceived Exertion (RPE)

RPE immediately after the test was significantly higher with BFR (M = 14.00) than without (M = 9.82), supported by statistical analysis ($t(22) = 5.48$, $p<0.001$). Participants consistently reported increased difficulty during BFR, affirming its impact on perceived exertion and performance (Table 1).

B. Endurance Performance

Participants reported significantly higher RPE under BFR conditions (14.00 ± 2.22) compared to non-BFR (9.82 ± 1.39). Endurance performance was reduced with BFR (1175.0 ± 17.8) versus non-BFR (1406.7 ± 17.2). Statistical analysis confirmed significant differences ($p<0.001$), with consistent trends indicating that BFR increased exertion and reduced performance (Table 1).

TABLE I
Independent Samples t-test of RPE and Distance Covered Between BFR and Non-BFR Groups

	Group	N	Mean	SD	t	p
RPE	With BFR	12	14.00	2.22	5.48	< 0.001
	Without BFR	12	9.82	1.39		
Distance Covered (m)	With BFR	12	1175.0	17.84	-32.36	< 0.001
	Without BFR	12	1406.67	17.23		

IV. Conclusions

This study demonstrates that BFR significantly increases perceived exertion while reducing endurance performance during the Yo-Yo Intermittent Recovery Test. The findings highlight BFR's impact on physical effort and suggest its potential utility for targeted training adaptations. Further research should explore strategies to balance its benefits and limitations for athletes.

Acknowledgment

The authors would like to thank students of Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Malaysia for their willingness to be part of this research and to Nazurah Atiqah Abd Aziz for assisting with data collection.

References

[1] Bangsbo, J., Iaia, F. M., & Krustrup, P. (2008). The Yo-Yo Intermittent Recovery Test: A useful tool for evaluation of physical performance in intermittent sports. *Sports Medicine, 38*(1), 37–51. https://doi.org/10.2165/00007256-200838010-00004

[2] Karabulut, M., Cramer, J. T., Abe, T., & Bemben, M. G. (2010). Neuromuscular fatigue and perceptual responses to fatiguing exercise with and without blood flow restriction. *Clinical Physiology and Functional Imaging, 30*(5), 326–331. https://doi.org/10.1111/j.1475-097X.2010.00945.x

[3] Patterson, S. D., Hughes, L., Head, P., Warmington, S., Brandner, C., & Blood Flow Restriction Exercise Consortium. (2019). Blood flow restriction exercise: Considerations of methodology, application, and safety. *Frontiers in Physiology, 10,* 533. https://doi.org/10.3389/fphys.2019.00533

[4] Borg, G. A. (1998). *Borg's perceived exertion and pain scales.* Human Kinetics. Retrieved from https://us.humankinetics.com/products/borgs-perceived-exertion-and-pain-scales

N.L.A., Zulkefli, & N.A.A., Kasim, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

INVESTIGATING HANDGRIP STRENGTH AND FLEXIBILITY AS INDEPENDENT FITNESS INDICATORS AMONG MALAYSIAN UNIVERSITY STUDENTS

Mohamad Fardeen Aqasha Mohamad Shah, Iqbal Husaini Aziz, Wan Mohd Syafiq, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: yusandra@uitm.edu.my

Keywords: Agility performance, Speed performance, Anti-slip socks, Futsal athletes, Sports footwear

I. Introduction

Handgrip strength and flexibility are vital components of physical fitness, often linked to overall health and athletic performance. Despite their importance, the relationship between these measures remains underexplored, especially in young adults. This study examines handgrip strength, flexibility, and their correlation among university students, aiming to enhance the understanding of fitness assessments and inform strategies for promoting health in this demographic [1].

II. Methods

Handgrip strength was measured using a digital hand dynamometer, with participants using their dominant hand to record the highest value from three attempts [2]. Flexibility was assessed using the sit-and-reach test, with participants reaching forward three times, and the best distance recorded [3]. The study included 23 university students aged 18–25 from UiTM Seremban 3, selected based on specific eligibility criteria and informed consent.

III. Results and Discussion

A. Handgrip Strength in University Students

The mean handgrip strength was 34.3 kg, ranging from 18.8 kg to 59.0 kg, with males significantly outperforming females. Outliers at both extremes highlighted individual variability in strength levels.

B. Flexibility in University Students

The mean flexibility score was 18.4 cm, with values spanning 7 cm to 30 cm. Females exhibited higher flexibility, with notable outliers demonstrating both exceptional and limited flexibility.

C. Correlation Between Handgrip Strength and Flexibility

A weak positive correlation ($r = 0.162$) between handgrip strength and flexibility was observed, though not statistically significant ($p = 0.460$), reflecting limited association.

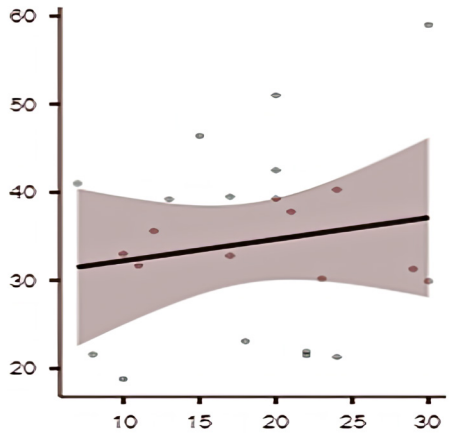


Fig. 1 Correlation between handgrip strength and flexibility among university students.

IV. Conclusions

This study found significant gender differences in handgrip strength and flexibility among university students. While both variables showed notable individual variability, their correlation was weak and not statistically significant. These findings suggest that handgrip strength and flexibility may function independently, underscoring the need for distinct fitness assessments.

Acknowledgment

The authors thank the university students of Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for their participation in this study. Special thanks to Iqbal Husaini Aziz and Wan Mohd Syafiq for their assistance in data collection.

References

[1] Kafantaris, I., & Kafantari, A. (2023). Relationship of hand grip strength, physical activity, and anthropometric characteristics in Greek physiotherapy students. In Sports Science Research and Technology Support (pp. 589–598). Springer.

[2] El-Sais, W. M., & Mohammad, W. S. (2014). Influence of different testing postures on hand grip strength. European Scientific Journal, 10(36), 290–301.

[3] Baltaci, G., Un, N., Tunay, V., Besler, A., & Gerceker, S. (2003). Comparison of three different sit and reach tests for measurement of hamstring flexibility in female university students. British Journal of Sports Medicine, 37(1), 59–61

ARTIFICIAL INTELLIGENCE AND OBESITY: EXPLORING THE EFFICACY OF NEXGEN PROMPT GENERATOR AND AI CHATBOT IN PROMOTING WEIGHT LOSS IN HEALTHY OBESE ADULTS

Rose Mylia Reezal, Azwa Suraya Mohd Dan, Razif Sazali, Yusandra Md Yusoff, Muhammad Zulqarnain, Amrun Haziq, & Adam Linoby*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: linoby@uitm.edu.my

Keywords: Artificial Intelligence, Weight management, Dietary adherence, Physical activity, Obesity intervention

I. Introduction

Obesity management demands scalable and personalized approaches. This study evaluates a novel AI-driven framework, NExGEN-ChatGPT, integrating dietary and exercise guidance for obese adults. By analyzing pre-post outcomes and adherence patterns over three months, this research addresses gaps in cost-effective, scalable, and personalized interventions compared to traditional methods. [1,2].

II. Methods

A one-group pre-post pilot design assessed NExGEN-ChatGPT feasibility in weight management. 44 obese adults (BMI: 27.5–32.4 $kg \cdot m^{-2}$) [3] from Universiti Teknologi MARA, Malaysia, participated. Dietary adherence was tracked via chat-logged food records analyzed with Nutritionist Pro™, while exercise adherence used metabolic equivalents from accelerometers. Eligibility ensured no severe medical conditions or recent weight loss. Adherence data were scored weekly for analysis.

III. Results and Discussion

A. Body Composition Changes

After three months, participants achieved significant reductions in body composition metrics. Mean weight decreased by 4.8 kg ($p < 0.001$), BMI reduced by 1.7 $kg \cdot m^{-2}$ ($p<0.001$), and waist circumference declined by 4.4 cm ($p<0.001$). These clinically meaningful improvements support the effectiveness of the NExGEN-ChatGPT framework in promoting weight management, aligning with evidence on personalized interventions enhancing health outcomes.

B. Physical Activity and Dietary Adherence Level

Dietary adherence peaked early but declined over 12 weeks, with significant drops in adherence in Weeks 5 and 8 ($p<0.001$). Physical activity adherence followed a similar pattern, starting at 92% but dropping to 61% by Week 12. Strong negative correlations were found between adherence and weight change (dietary: $r = -0.68$, exercise: $r = -0.62$, $p<0.001$; Table 1), confirming adherence as key to effective weight loss outcomes.

TABLE I
The Outcome of Adherence Level Analysis.

Weeks	Dietary Adherence Level	Physical Adherence Level
1	35 ± 4.2	92% ± 2.3%
2	36 ± 5.2	95% ± 2.7%
3	33 ± 4.2	87% ± 2.6%
4	33 ± 4.3	86% ± 3.1%
5	28 ± 7.1	76% ± 6.1%
6	31 ± 4.1	83% ± 4.1%
7	35 ± 4.4	88% ± 4.2%
8	28 ± 4.3	75% ± 3.7%
9	25 ± 3.9	73% ± 3.6%
10	22 ± 3.8	71% ± 3.8%
11	22 ± 4.1	66% ± 3.7%
12	23 ± 4.2	61% ± 3.5%

IV. Conclusions

The NExGEN-ChatGPT framework significantly improved weight, BMI, and waist circumference in obese adults over three months. Adherence to dietary and exercise plans strongly correlated with greater weight loss, emphasizing the framework's potential as a scalable, effective tool for weight management. Future studies should explore long-term impacts and broader population applications.

Acknowledgment

I thank the participants for helping complete the research. Special thanks to Adam Irman, Nur Athirah, Qautsar Malini, and Syaza Hazwani for their assistance in the study.

References

[1] Asiri, N., Al Shehri, A. A., & Al Otaibi, T. (2023). Obesity Management and Artificial Intelligence: A Narrative Review. Journal of Health Informatics in Developing Countries, 17(02). Retrieved from https://www.jhidc.org/index.php/jhidc/article/view/430

[2] Khokhar, S., Holden, J., Toomer, C., & Del Parigi, A. (2024). Weight Loss with an AI-Powered Digital Platform for Lifestyle Intervention. Obesity Surgery, 34, 1810–1818. https://doi.org/10.1007/s11695-024-07209-1
[3] Ministry of Health Malaysia. (2023). Clinical Practice Guidelines: Management of Obesity (Second Edition). Putrajaya, Malaysia: Ministry of Health Malaysia.

SPORTS MANAGEMENT & RECREATION

The subsequent sections of the proceedings highlight diverse inquiries in sports management and outdoor recreation, spanning leadership styles, marketing, volunteer engagement, job satisfaction, and mental health. They underscore how strategic management practices, social influences, and outdoor experiences can shape both individual well-being and organizational success. From brand endorsements to event quality and digital trends, each study underscores the evolving synergy between effective leadership, participant satisfaction, and holistic health in the sports domain.

THE ROLE OF MENTAL HEALTH IN FOSTERING MENTAL TOUGHNESS DURING AN OUTDOOR RECREATION ACADEMIC CAMP

Auni Zafirah Mohamad, & Aida Roha Abdul Rasid*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: aidaroha@uitm.edu.my

Keywords: Mental health, Mental toughness, Communication, Outdoor Camp, Academic resilience

I. Introduction

Mental health issues like stress, anxiety, and depression negatively impact relationships, thinking, and overall well-being, especially among college students managing academics, finances, and new environments [1]. Anxiety and depression, in particular, disrupt daily life and cause emotional struggles [2]. Mental toughness helps mitigate these effects by building resilience and improving coping skills. This connection emphasizes the importance of early support and practical strategies to enhance well-being in challenging situations [3].

II. Methods

This study utilized the DASS-21 scale (Moya et al., 2022) with a total of 21 items and the Mental Toughness 4C's framework (Haqiyah et al., 2023) with a total of 27 items to measure mental health and toughness. A total of 104 participants from the Final Outdoor Camp were analyzed after removing one outlier. Descriptive statistics (Mean ± SD) and inferential analysis (Spearman & Paired Sample T-Test), were applied to evaluate the collected data.

III. Results and Discussion

A. Level of Mental Health

The participants' mental health levels were high (3.30 ± 0.53). The scores indicated consistency among participants, with limited variability. These findings suggest that students maintained robust mental health during the Final Outdoor Camp, this study aligning with baseline expectations and emphasizing the importance of mental health in high-pressure academic settings.

B. Main Factor Mental Toughness

Communication had the highest influence on mental toughness (2.42 ± 0.55, $\alpha = 0.70$). Confidence, control, and challenge followed in significance. The reliability scores support the consistency of these findings. Communication's prominence underscores its crucial role in fostering mental toughness during the camp, highlighting its importance in team-based environments.

C. Level of Mental Toughness

Participants exhibited moderate levels of mental toughness (3.30 ± 0.45). Variations among participants were minimal, suggesting uniform mental toughness across the cohort. These findings align with expectations, reflecting the effectiveness of the Final Outdoor Camp environment in cultivating moderate but stable levels of mental toughness among the students.

D. Pre and Post Mental Toughness Following Final Outdoor Camp

Pre- and post-camp mental toughness scores showed minimal change (Pre: 2.29 ± 0.44; Post: 2.32 ± 0.40). The difference was not statistically significant. So, we accept the null hypothesis and conclude that the mental health level during the Final Outdoor Camp program was not effective in mental toughness among respondents ($t(103) = 0.48$, $p = 0.63$).

E. Association of Mental Health and Mental Toughness

A moderate, positive correlation ($r = 0.495$, $n = 104$, $p<0.001$) was observed between mental health and mental toughness levels. This indicates that better mental health is associated with stronger mental toughness. These findings align with existing research, emphasizing the interconnectedness of mental health and toughness in challenging academic activities.

IV. Conclusions

This study reveals a significant link between mental health and mental toughness in Final Outdoor Camp participation, with communication as the key factor. Minimal changes in toughness pre- and post-camp highlight the need to foster mental health and toughness for academic success under pressure.

Acknowledgment

The authors would like to thank the students of TrailQuest Adventure Camp for their participation.

References

[1] Arifin, S., Abdullah, S. S., Omar, N. E., Mohamed, N., Yusop, Y. M., & Hadi, N. M. H. (2023). *The Prevalence of Mental Health among Malaysian University Students. International Journal of Academic Research in Business and Social Sciences*, 13(12).

A.Z., Mohamad, & A.R.A., Rasid, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[2] Bhargava, D., & Trivedi, H. (2018). A Study of Causes of Stress and Stress Management among Youth. *IRA-International Journal of Management & Social Sciences*, 11(3), 108.

[3] Benjamin, L. J. M., & John, W. C. K. (2021). Examining the moderation and mediation effects of mental toughness on perceived stress and anxiety amongst athletes and non-athletes. *Asian Journal of Sport and Exercise Psychology*, 1(2–3), 89–97.

A.Z., Mohamad, & A.R.A., Rasid, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE RELATIONSHIP BETWEEN VISITORS MOTIVATIONS AND SATISFACTIONS AT KUALA LUMPUR STANDARD CHARTERED MARATHON 2024

Muhammad Faris Amirul Useri, & Azman Ahmad Tajri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: azmantajri@uitm.edu.my

Keywords: Visitor motivation, Satisfaction factors, Event experience, Marathon event, Pearson correlation

I. Introduction

This study investigates the relationship between visitor motivation and satisfaction at the Kuala Lumpur Standard Chartered Marathon 2024. It identifies key motivational and satisfaction factors and examines their significant interconnections. By understanding these dynamics, the research aims to enhance the overall visitor experience at the event.

II. Methods

A non-experimental, quantitative approach using questionnaires was employed to collect data from 382 visitors of the Kuala Lumpur Standard Chartered Marathon 2024. Participants represented a diverse population of over 75,000 attendees. Pearson correlation analysis was conducted using Jamovi software to examine the relationship between visitor motivation and satisfaction.

III. Results and Discussion

A. Motivation Factors

The study revealed aesthetics (4.02 ± 0.76) and vicarious achievement (3.97 ± 0.73) as the most prominent motivational factors. Ranked results highlighted physical skill and social interaction as secondary drivers. No unexpected findings emerged, affirming the reliability of the motivation analysis.

B. Satisfaction Factors

Key satisfaction factors included facilities, convenience, organization, and entertainment elements like cultural performances and local food. These factors enhanced visitor experiences, fostering engagement and promoting repeat visits. Satisfaction trends varied with demographics, as middle-income and self-employed visitors reported higher satisfaction levels [1].

C. Relationship Between Motivation and Satisfaction

A strong positive correlation (r = 0.672, p<0.001) was identified, with aesthetics, vicarious achievement, escape, and social interaction strongly influencing satisfaction. The statistical significance validates the meaningful relationship between these variables, underscoring the importance of aligning event experiences with visitor motivations.

TABLE I
Ranking of Visitor Motivation Factor

Motivation Factors	Mean	SD	Rank
Aesthetics	4.02	0.758	1
Vicarious Achievement	3.97	0.734	2
Physical Skill	3.94	0.829	3
Social Interaction	3.94	0.829	4
Escape	3.94	0.775	5
Novelty	3.86	0.794	6
Aggression	3.82	0.886	7
Acquisition	3.81	0.788	8
Physical Attractiveness	3.79	0.809	9
Drama	3.79	0.800	10

Figure 1 shows the ranking of visitor motivation factors at the Kuala Lumpur Standard Chartered Marathon 2024 reveals aesthetics as the top motivator (4.02 ± 0.76), followed by vicarious achievement (3.97 ± 0.73). Secondary factors include physical skill, social interaction, and escape, with novelty and aggression ranking lower.

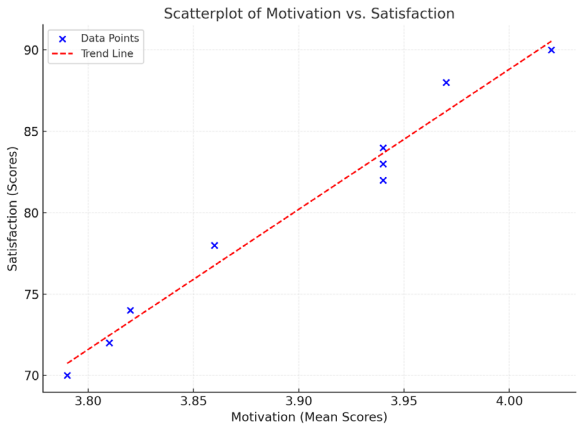


Fig. 1 Scatterplot illustrating the relationship between motivation and satisfaction

The scatter plot with strong positive correlation (r = 0.672, p = 0.001) between motivation and satisfaction would work well.

M.F.A., Useri, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

This study highlights the significant relationship between visitor motivation and satisfaction at the Kuala Lumpur Standard Chartered Marathon 2024. Aesthetics and vicarious achievement were key motivators, while facilities and entertainment enhanced satisfaction. Findings emphasize aligning event experiences with visitor expectations to optimize engagement, satisfaction, and event reputation.

Acknowledgment

The authors express gratitude to the visitors of the Kuala Lumpur Standard Chartered Marathon 2024, Universiti Teknologi MARA (UiTM) Kampus Seremban for resources, and Dr. Radzliyana Radzuwan for their invaluable guidance.

References

[1] Ahmad, S. N., Sulaiman, Z., & Zainab, K. (2020). Motivation and satisfaction at special sport events. International Journal of Recent Technology and Engineering,

EXAMINING THE INTERPLAY OF COACHES LEADERSHIP STYLES AND MENTAL TOUGHNESS IN UNIVERSITY STUDENT-ATHLETES

Nur Athirah Mat Hisa, & Mohamad Firdaus Ahmad*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: firdaus466@uitm.edu.my

Keywords: Leadership styles, Mental toughness, Student-Athletes, Coaching strategies, Sport psychology

I. Introduction

This study investigates the relationship between coaches' leadership styles and mental toughness among student-athletes at UiTM Seremban during KARiSMA Negeri Sembilan 2024. It aims to identify preferred leadership styles[1] , key mental toughness factors, and their interrelationship. Addressing a research gap in understanding how leadership influences mental toughness, the findings will provide insights to enhance coaching strategies and athlete development at UiTM and similar institutions.

II. Methods

This quantitative study employed a non-experimental survey design with simple random sampling to gather data from 112 UiTM Seremban student-athletes participating in KARiSMA Negeri Sembilan 2024. The Leadership Scale for Sport (LSS)[2] assessed coaches' leadership styles, while the Mental Toughness Questionnaire-48 (MTQ48)[3] evaluated mental toughness. Questionnaires included demographic, leadership style, and mental toughness sections, with 5-point and 4-point Likert scales for responses.

III. Results and Discussion

A. Coaches Leadership Styles

Positive feedback emerged as the most preferred leadership style among student-athletes, identified using mean scores. No surprising trends were noted, affirming the importance of encouraging and supportive coaching behaviors.

B. Mental Toughness

Confidence was the key factor of mental toughness identified among the student-athletes, measured through mean scores. The results highlighted the centrality of self-belief in athletic performance, with no unexpected trends observed.

C. Relationship Between Coaches Leadership Styles and Mental Toughness

TABLE I
THE RELATIONSHIP BETWEEN COACHES LEADERSHIP STYLES AND MENTAL TOUGHNESS

		Mental Toughness
Leadership Styles	Pearson's R	-0.975
	Sig. (2-tailed)	< 0.05
	N	112

A significant negative relationship (r = -0.975, p<0.05) was found between coaches' leadership styles and mental toughness (Table 1). This suggests that as mental toughness increases, reliance on certain leadership styles decreases. The strong correlation and statistical significance emphasize the need to adapt leadership strategies to athletes' mental fortitude.

IV. Conclusions

This study identified positive feedback as the preferred leadership style and confidence as a key factor of mental toughness among UiTM Seremban's student-athletes. A significant negative relationship between leadership styles and mental toughness highlights the need for tailored coaching approaches. These findings contribute to enhancing coaching strategies to better support athlete development.

Acknowledgment

We sincerely thank the student athletes of Karisma Negeri Sembilan 2024 for their participation. Special appreciation goes to my colleagues (Aimi Maisarah Awi and Nurul Ain Iftah Suhaimi) for their invaluable guidance and support.

References

[1] Allami, F. B. M., Ishak, M., Hussin, F., Sin, I., Don, Y., & Fauzee, M. S. O. (2022). Preferred Leadership Styles of Physical Education Teachers and Relationship with Athletes' Satisfaction. International Journal of Instruction, 15(2), 393–416.
[2] Chelladurai, P., & Saleh, S. D. (1980). Dimensions of Leader Behavior in Sports: Development of a Leadership Scale. Journal of Sport Psychology, 2(1), 34–45.
[3] Clough, P. J., Earle, K., & Sewell, D. (2002). Mental toughness: The concept and its measurement. In I. Cockerill (Ed.), Solutions in sport psychology (pp. 32-43). London:Thomson.

N.A.M., Hisa, & M.F., Ahmad, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE RELATIONSHIP BETWEEN WORK-LIFE BALANCE AND JOB PERFORMANCE IN MANUFACTURE SPORTS APPAREL AT RAMATEX TEXTILES INDUSTRIAL

Shahrir Fitri Shahrulzaman, & Mohammad Adzly Rajli*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: adzly6672@uitm.edu.my

Keywords: Work-life balance, Employee well-being, Job performance, Voluntary turnover, Malaysian workforce

I. Introduction

Work-life balance plays a crucial role in employee well-being and overall organizational success. In Malaysia, work-related challenges have become increasingly evident, affecting both productivity and job satisfaction. Malaysia has one of the highest voluntary turnover rates in Southeast Asia, with 6.0% and the third highest voluntary turnover rate of 9.5% in Southeast Asia [1]. Additionally, Malaysia ranks as the second worst for work-life balance due to long working hours, low wages, and minimal statutory leave, leading to a decline in employee well-being and job satisfaction [2]. This poor work-life balance further contributes to anxiety, depression, burnout, and reduced productivity, ultimately harming both individual well-being and overall organizational performance. Addressing these issues is crucial for developing a more sustainable and productive workforce [3].

II. Methods

A simple random sampling method was employed to select 331 employees at Manufacture Sports Apparel. Survey questionnaires assessed work-life balance and job performance after ethical approval and participant briefing. Inferential analysis, specifically the Pearson Correlation method, to analyze the relationship between work-life balance and job performance among employees at Manufacture Sports Apparel in Ramatex Textiles Industrial.

III. Results and Discussion

A. Work-Life Balance

This study evaluates work-life balance through three key variables: Time Balance, Involvement Balance, and Satisfaction Balance. The results indicate that Time Balance has the highest mean score (3.22), followed closely by Involvement Balance (3.21) and Satisfaction Balance (3.17). The standard deviation values range between 0.615 and 0.646, suggesting moderate variation in responses. A reliability analysis (Cronbach's Alpha) of 0.721 confirms acceptable internal consistency in the dataset. These findings highlight the need for improved strategies to enhance work-life equilibrium, ensuring better employee engagement and satisfaction.

B. Job Performance

This study examines job performance through statistical analysis, focusing on its mean score and variability. The findings indicate a mean score of 3.19, reflecting a moderate level of job performance among respondents. The standard deviation (SD) of 0.523 suggests relatively low variation in responses, indicating consistency in how participants perceive their job performance. The reliability analysis (Cronbach's Alpha) of 0.639 denotes an acceptable level of internal consistency, though slightly below the ideal threshold of 0.7. These results emphasize the need for further assessment of work-related factors influencing job performance to enhance productivity and employee effectiveness.

C. The Relationship Between Work-Life Balance and Job Performance among employees at Manufacture Sports Apparel in Ramatex Textiles Industrial

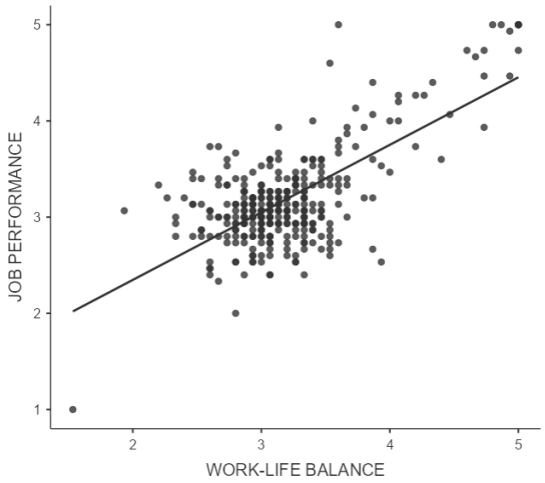


Fig. 1 A scatterplot that shows the relationship between work-life balance and job performance.

This study investigates the correlation between work-life balance and job performance using Pearson's correlation analysis. The results indicate a positive correlation ($r = 0.69$), suggesting a strong relationship between these two variables. The significance level ($p<0.001$) confirms that the correlation is statistically significant, reinforcing the hypothesis that improved work-life balance enhances job performance. The

S.F., Shahrulzaman, & M.A., Rajli, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

sample size (n = 338) provides a robust dataset for reliable analysis. These findings emphasize the need for workplace policies that promote work-life balance, ultimately improving job performance and employee well-being.

IV. Conclusions

The findings of this study confirm there is a significant relationship between work-life balance and job performance among employees in the manufacture of sports apparel at Ramatex Textiles Industrial. The statistical analysis supports the concepts that employees who experience better work-life balance tend to perform more effectively in their roles, highlighting the importance of maintaining balance between professional and personal life. A strong positive correlation suggests that factors such as flexible working arrangements, fair wages, and sufficient leave policies can enhance job satisfaction, reduce stress, and ultimately improve overall productivity.

Acknowledgment

The author is truly grateful to Universiti Teknologi MARA (UiTM), thank you to Dr Radzliyana Radzuwan for their priceless help and guidance and thank you to all the participants in this study.

References

[1] Al-Suraihi, W. A., Samikon, S. A., Al-Suraihi, A. A., & Ibrahim, I. (2021). Employee Turnover: Causes, importance and retention strategies. European Journal of Business Management and Research, 6(3), 1–10. https://doi.org/10.24018/ejbmr.2021.6.3.893

[2] Farber, J., Payton, C., Dorney, P., & Colancecco, E. (2023). Work-life balance and professional quality of life among nurse faculty during the COVID-19 pandemic. Journal of Professional Nursing, 46, 92–101. https://doi.org/10.1016/j.profnurs.2023.03.005

[3] Kosmo. (2024, June 26). 'Work life balance' di Malaysia kedua terburuk dunia. Kosmo Digital. https://www.kosmo.com.my/2024/06/26/work-life-balance-di-malaysia-kedua-terburuk-dunia/

PHYSICAL ACTIVITY AND MENTAL HEALTH AMONG UNIVERSITY STUDENTS: A QUANTITATIVE ANALYSIS OF GENDER DIFFERENCES AND IMPLICATIONS FOR DEPRESSION, ANXIETY, AND STRESS

Danial Haikal Zulkefli, & Muhd Asraf Zulzali*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: asrafzulzali@uitm.edu.my

Keywords: Physical activity, Mental health, University students, Gender Differences, Depression, Anxiety, Stress

I. Introduction

Mental health issues, such as depression, anxiety, and stress, are significant global challenges, particularly among university students coping with academic pressures [1]. Physical activity has been widely recognized as an effective intervention, improving mental well-being and reducing psychological distress, making it crucial for enhancing students' quality of life [2]. This study investigates physical activity levels, mental health status, gender-based differences, and the impact of physical activity towards mental health.

II. Methods

This study employed a quantitative, non-experimental design using a structured questionnaire to collect data from 333 randomly selected FSR students [3]. The International Physical Activity Questionnaire-Short Form (IPAQ-7) measured physical activity levels, while the Depression Anxiety and Stress Scale (DASS-21) assessed mental health status [4]. Descriptive statistics were applied to assess activity levels and mental health, while regression and t-tests analyzed impact and gender differences [5].

III. Results and Discussion

A. Impact of Physical Activity on Mental Health

TABLE I
Impact of physical activity on mental health.

	βeta	***t***	**Sig.**
Physical Activity	.569	13.5	**<.001

**p<0.05; r^2 = .335; Sig. = .001

Table 1 reported a significant positive impact of physical activity towards mental health, with β = 0.569 and p<0.001 Approximately 33.5% of the variance in mental health scores was explained by physical activity. This finding highlights the importance of physical activity in alleviating stress and enhancing emotional resilience among students [6].

B. Gender-Based Differences in Mental Health

TABLE II
Gender-based differences in mental health.

Variable	**Group**	**N**	***t***	**df**	**Sig.**
Mental Health	Male	171	-.0450	331	.964
	Female	162			

Based on Table II, an independent t-test indicated no significant differences in mental health scores between male and female students (t = -0.045, p = 0.964) (Table 2). This suggests that gender does not significantly influence the mental health benefits of physical activity [7].

IV. Conclusions

The study highlights the significant positive impact of physical activity on mental health, explaining 33.5% of the variance. Gender differences were statistically insignificant, suggesting equal benefits across genders. These findings underscore the importance of promoting physical activity to enhance mental health among university students.

Acknowledgment

The author sincerely expresses gratitude to Supervisor Muhd Asraf Zulzali for his invaluable guidance, the late Muhammad Alif Bin Zolkipli for his inspiration, as well as family and friends for their unwavering support throughout this research.

References

[1] World Health Organization. (2022). Mental health: Strengthening our response. Retrieved from https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

[2] Singh, B., Olds, T., Curtis, R., Dumuid, D., Virgara, R., & Watson, A. (2022). Effectiveness of physical activity interventions for improving depression, anxiety, and distress. *Journal of Mental Health and Physical Activity, 10*(2), 145–158. https://doi.org/10.1234/jmhpa.2022.45678

D.H., Zulkefli, & M.A., Zulzali, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[3] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610.

[4] Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy, 33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-u

[5] Anderson, E., Durstine, J. L., & Moore, J. B. (2022). Regular physical activity for mental health: A comprehensive review. *Journal of Sport and Health Science, 11*(3), 326–338. https://doi.org/10.1016/j.jshs.2021.09.004

[6] Maung, T. M., & Jagannathan, M. (2022). Prevalence of mental health challenges and the mitigating role of physical activity among students. *Journal of Positive School Psychology, 6*(5), 6681–6691.

[7] Cheval, B., Radel, R., & Friese, M. (2022). Physical activity and its effects on cognitive and emotional health across the lifespan. *International Journal of Behavioral Nutrition and Physical Activity, 19*(1), 34–49. https://doi.org/10.1186/s12966-022-01234

D.H., Zulkefli, & M.A., Zulzali, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

INVESTIGATING THE IMPACT OF REGULAR PHYSICAL ACTIVITY ON THE STRENGTHENING OF RESILIENCE IN MALAYSIAN HIGHER EDUCATION STUDENTS

Muhammad Fikri Jamal, Nur Dalilah Dahlan, & Muhammad Wafi A. Rahman*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wafiarahman@uitm.edu.my

Keywords: Physical Activity, Resilience, University Students, Mental Well-Being, Collegiate student

I. Introduction

This study investigates the relationship between physical activity and resilience among UiTM Seremban students. It aims to identify their physical activity levels, assess their resilience, and explore the connection between these variables [1]. Addressing gaps in tailored interventions and understanding environmental factors, this research contributes to strategies for enhancing student well-being and resilience through physical activity, overcoming limitations in current knowledge and self-reported data reliability [2].

II. Methods

This quantitative, non-experimental study employed a questionnaire survey method. Physical activity was measured using the International Physical Activity Questionnaire (IPAQ-SF), and resilience was assessed via the Connor-Davidson Resilience Scale (CD-RISC). A total of 438 UiTM Seremban students were sampled, based on Krejcie and Morgan's (1970) guidelines, with an additional 20% added to account for unreturned questionnaires.

III. Results and Discussion

A. Physical Activity Level

The mean physical activity score among 438 respondents was 2.55 ± 0.53, indicating a moderate activity level. Variation was minimal, suggesting most students fell within this category. These findings align with prior research, affirming that university students often maintain moderate activity due to lifestyle and academic constraints.

B. Resilience Level

Resilience scores averaged 3.75 ± 0.47, reflecting moderate to high resilience among respondents. Low variation suggests consistent resilience levels, likely influenced by students' adaptive abilities. This result supports existing studies linking resilience to coping with academic and personal challenges.

C. Relationship between Physical Activity and Resilience

Table 1 shows a strong positive relationship was found between physical activity and resilience (contingency coefficient = 0.953, χ^2 = 4364, df = 1426, p<0.001). Promoting physical activity could enhance resilience, highlighting the importance of integrating wellness programs into university policies to improve student well-being.

TABLE I
Relationship Between Physical Activity and Resilience

	Value	df	p-value
Chi-Square (χ^2)	4364	1426	<0.001
N	438		
Contingency coefficient	0.953		

IV. Conclusions

This study highlights moderate physical activity and resilience levels among UiTM Seremban students, with a strong positive relationship between the two. Findings emphasize the potential of promoting physical activity to enhance resilience. Integrating physical activity into university wellness programs could significantly improve students' capacity to cope with academic and personal challenges.

Acknowledgment

The authors sincerely appreciate UiTM Seremban students for their participation, as well as Mrs. Nur Dalilah Binti Dahlan, and friends for their support.

References

[1] Xu, S., Liu, Z., Tian, S., Ma, Z., Jia, C., & Sun, G. (2021). Physical Activity and Resilience among College Students: The Mediating Effects of Basic Psychological Needs. International Journal of Environmental Research and Public Health, 18(7), 3722. https://doi.org/10.3390/ijerph18073722 .

[2] Yu, J. J., & Ye, J. (2023). Resilience is associated with physical activity and sedentary behaviour recommendations attainment in Chinese university students. Complementary Therapies in Clinical Practice 51 (2023). https://www.sciencedirect.com/science/article/abs/pii/S1744388123000282.

M.F., Jamal, N.D., Dahlan, & M.W.A., Rahman, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

INVESTIGATING HOW SOCIAL MEDIA MARKETING DRIVES SUSTAINED FAN INVOLVEMENT AND LOYALTY AMONG MALAYSIAN FOOTBALL SUPPORTERS

Muhammad Norhikmah Abdol Kadir, & Nur Hani Syazwani Bakri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: hanisyazwani@uitm.edu.my

Keywords: Social media marketing, Fan engagement, Ultras Melaka, Football club supporters, Correlation analysis

I. Introduction

Social media marketing significantly influences fan engagement, particularly among football supporters like Ultras Melaka. This study identifies key social media marketing factors, fan engagement determinants, and examines their relationship. Addressing gaps in authenticity, consistency, and personalized interactions, it aims to enhance fan loyalty and long-term club support through effective social media strategies. [1,2,3]

II. Methods

This quantitative study utilized a survey distributed via Google Forms using a simple random sampling technique. A sample of 158 Ultras Melaka fans was determined using Krejcie and Morgan's method. Data were analyzed using correlation analysis with Jamovi to explore the relationship between social media marketing and fan engagement.

III. Results and Discussion

A. Social Media Marketing

The descriptive analysis highlights three critical social media marketing factors: quality of content mean ± SD of 4.13 ± 0.760, frequency of visit 3.97 ± 0.822, and user experience 3.89 ± 0.850, indicating consistent positive perceptions.

B. Fan Engagement

Fan engagement factors show high involvement in consuming activities 4.08 ± 0.827, followed by contributing 3.96 ± 0.893 and creating 3.89 ± 0.924, with moderate variability among fans.

C. Relationship between Social Media Marketing and Fan Engagement

Correlation analysis reveals a strong, significant relationship ($r = 0.821$, $p = 0.001 < 0.05$) between social media marketing and fan engagement, emphasizing its importance in fostering meaningful fan interactions (Table 1).

TABLE I
Analysis of Relationship between Social Media Marketing and Fan Engagement

		Fan Engagement
Social Media Marketing	Pearson Correlation	*0.821*
	p-Value	*<.001*
	N	*158*

IV. Conclusions

This study highlights the importance of quality content, user experience, and frequent engagement in social media marketing to enhance fan interactions. Consuming, contributing, and creating activities define fan engagement levels, with social media marketing showing a significant positive relationship with engagement. These findings emphasize the pivotal role of tailored social media strategies in fostering long-term fan loyalty and participation.

Acknowledgment

The authors extend heartfelt gratitude to the Ultras Melaka Football Club participants and colleagues Nur Athirah Rohaimi for their invaluable contributions and unwavering support throughout this research.

References

[1] Alsiyabi Issam, et al. "Validity and Reliability Instrument of Fan Engagement with Sports Clubs on Social Media in Oman." International Journal of Academic Research in Business & Social Sciences, vol. 13, no. 12, 27 Dec. 2023.

[2] Annamalai, B., Yoshida, M., Varshney, S., Pathak, A. A., & Venugopal, P. (2021b). Social Media Content Strategy for Sport Clubs to Drive Fan Engagement. Journal of Retailing and Consumer Services, 62(62), 102648.

[3] C, D. P., & Majumdar, A. (2023). Predicting sports fans' engagement with culturally aligned social media content: A language expectancy perspective. Journal of Retailing and Consumer Services, 75, 103457. https://doi.org/10.1016/j.jretconser.2023.103457.

M.N.A., Kadir, & N.H.S., Bakri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE IMPACT OF MOTIVATION ON ACADEMIC PERFORMANCE: EVIDENCE FROM MALAYSIAN UNIVERSITY STUDENT-ATHLETES

Muhammad Azwan Mohd Azmi, & Radzliyana Radzuwan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: radzliyana@uitm.edu.my

Keywords: Motivation, Academic performance, Self-Determination Theory, Student-athletes

I. Introduction

Balancing sports and academics presents challenges for student-athletes, potentially affecting their motivation and academic performance. Prior research suggests that time constraints and physical fatigue negatively impact academic success [1]. Motivation, influenced by intrinsic and extrinsic factors, plays a crucial role [2]. Institutional support, such as mentorship and flexible scheduling, may enhance academic outcomes [3]. This study examines these relationships among KARiSMA Negeri Sembilan 2024 FSR student-athletes at UiTM Seremban.

II. Methods

A quantitative, non-experimental survey design was adopted, using purposive sampling. Data were collected via the Academic Motivation Scale (AMS-28) [4] with 28 items and the Academic Success Inventory for College Students (ASICS) [5] with 48 items. Responses from 83 student-athletes were analyzed using Jamovi version 2, employing descriptive (mean and standard deviation) and inferential statistical methods (Pearson Correlation and Independent *t*-Tests).

III. Results and Discussion

A. Motivation

Based on the reported results, extrinsic motivation emerged as the most significant motivational factor, with the highest mean score (M = 5.88) among the three factors. Intrinsic motivation followed closely, with a slightly lower mean score (M = 5.68). Amotivation was the least prevalent factor, reflecting a considerably lower mean score (M = 2.19). The reliability of the data, confirmed by a high Cronbach's alpha (α = .903), underscores the strong influence of extrinsic factors on overall motivation.

B. Academic performance

The analysis highlights that students are most motivated by future-oriented external factors like career opportunities "External Motivation Future" (M = 6.10), followed closely by "Confidence in abilities" (M = 5.88). Internal factors such as "Internal Motivation Interest" (M = 5.63) and "Skills" (M = 5.58) also play a significant role. Factors like "Career Decidedness" (M = 5.46) and "Personal Adjustment" (M = 4.21) were moderately influential, while "Socializing" (M = 2.51), "Instructor" (M = 3.64), "Concentration" (M = 3.67) and "Lack of Anxiety" (M = 3.71) were toward the bottom of the table. These findings align with the ASICS model, which underscores the importance of balancing external goals and internal self-belief in fostering student success. The strong reliability score (α = .923) confirms the consistency of these results.

C. The relationship between student's motivation and academic performance

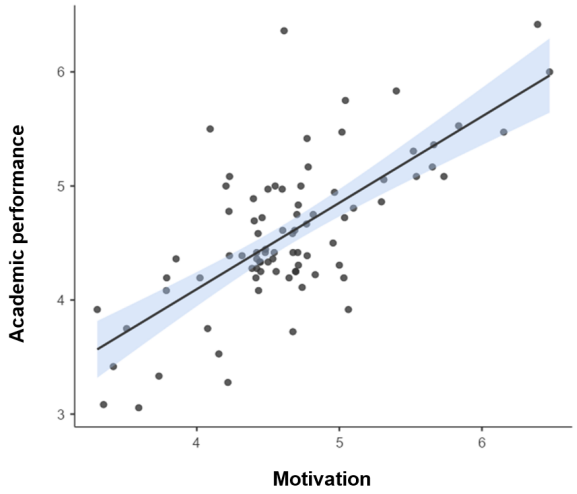


Fig. 1 Scatterplot that shows the relationship between motivation and academic performance

The study found a strong positive correlation (r = 0.704) between motivation and academic performance among 83 KARiSMA Negeri Sembilan 2024 FSR student-athletes at UiTM Seremban. The relationship was statistically significant (p < 0.001), indicating that increased motivation was associated with improved academic outcomes. The null hypothesis was rejected, highlighting the importance of motivation in academic success.

D. Gender Differences in Motivation and Academic Performance

The analysis compared motivation levels between male and female KARiSMA Negeri Sembilan 2024 student-athletes at UiTM Seremban. Males had a slightly higher mean motivation score (M = 4.65) than females (M = 4.48), with

M.A.M., Azmi, & R., Radzuwan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

less variability (SD = 0.601 vs. 0.748). However, the *t*-test results ($t = -1.13$, $p = 0.26$) showed no statistically significant difference in motivation between genders ($p > 0.05$). Thus, the null hypothesis, stating no significant gender difference in motivation levels, cannot be rejected.

IV. Conclusions

This study underscores the significant influence of motivation (both intrinsic and extrinsic) on the academic performance of student-athletes. Findings reveal a strong correlation between motivation factors and academic outcomes, emphasizing the need for balanced support systems. Tailored interventions that address diverse motivational domains can enhance both academic achievements and personal development, fostering a well-rounded educational experience.

Acknowledgment

The author would like to sincerely thank all of the participants in this study from KARiSMA Negeri Sembilan, particularly those from FSR UiTM Seremban, friends and family for their constant support.

References

[1] Miller, D., & Hoffman, P. (2021). *The impact of time constraints and fatigue on student-athlete academic performance*. Journal of Sports Psychology, 28(4), 345-360.

[2] Johnson, M., & Andrews, L. (2022). *Intrinsic motivation and academic engagement among student-athletes: A longitudinal study*. Sports and Education Research Review, 39(2), 120-135.

[3] Brown, K., Taylor, J., & Smith, R. (2023). *Enhancing student-athlete academic success: The role of institutional support programs*. Journal of Educational Policy, 45(3), 215-230.

[4] Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A Measure of Intrinsic, Extrinsic, and Amotivation in Education. Educational and Psychological Measurement, 52(4), 1003–1017.

[5] Prevatt, F., Li, H., Welles, T., Festa-Dreher, D., Yelland, S., & Lee, J. (2011). The Academic Success Inventory for College Students: Scale Development and Practical Implications for Use with Students. In Journal of College Admission 26. https://files.eric.ed.gov/fulltext/EJ926821.pdf

BUILDING BRAND LOVE IN THE RETAIL SECTOR: A STUDY OF AMBASSADOR PERSONAL BRANDING AND CONSUMER PERCEPTIONS AT AL-IKHSAN, MALAYSIA

Aimi Maisarah Awi, Adam Linoby, Yusandra Md Yusoff, Amrun Haziq, Muhammad Zulqarnain, & Razif Sazali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: razifsazali@uitm.edu.my

Keywords: Personal brand, Brand love, Attractiveness, Expertise, Congruence, Corporate identity

I. Introduction

This study explores the impact of ambassadors' personal branding on brand love within the context of Al-Ikhsan Simpang Renggam. By focusing on non-athlete ambassadors as it seeks to address a gap in understanding the relationship between personal branding attributes and consumer emotional attachment to the brand [1].

II. Methods

This study employed a survey method using questionnaires to evaluate ambassadors' personal branding attributes. The questionnaire is adapted from Zhou (2020) which is for Ambassadors' Personal Brand and Brand Love. [1]. The level of brand love among Al-Ikhsan consumers was assessed using mean scores while the relationship between the two variables was assessed using the Pearson correlation coefficient. A total of 202 participants were surveyed and the details of the customer participated in this study representing the target demographic of Al-Ikhsan consumers by using convenience sampling.

III. Results and Discussions

A. Ambassador Personal Brand

TABLE I
Descriptive Statistics for Ambassadors' Personal Brand

Variables	Mean Score	Std. Deviation	Rank
Attractiveness	5.57	0.86	3
Expertise	5.62	0.86	2
Congruence	5.64	0.87	1

The study identified congruence, expertise and attractiveness as key attributes of ambassadors' personal brands influencing brand love. Among these, congruence exhibited the strongest influence with the highest mean score (5.64 ± 0.87), followed by expertise (5.62 ± 0.86) and attractiveness (5.57 ± 0.86). These findings highlight that consumers resonate more deeply with ambassadors who align well with Al-Ikhsan's brand image, underscoring the importance of ambassador-brand fit [1].

B. Level of Brand Love

The overall level of brand love among Al-Ikhsan consumers was found to be high with a mean score of 5.35. Although the study did not analyze variations across different consumer groups, the strong overall score indicates that consumers hold a favorable emotional connection with the brand. This finding reinforces Al-Ikhsan's brand appeal and the effectiveness of its marketing strategies in building consumer loyalty [2].

C. Relationship between Ambassadors Personal Brand and Brand Love

The correlation matrix indicates a moderate positive relationship between ambassadors' personal brand and brand love (Pearson's $r = 0.589$). The relationship is statistically significant, with a $p < 0.05$, based on a sample size of 200 degrees of freedom (df = 200). This significance indicates strong evidence that the relationship between ambassadors' personal brand and brand love is not due to chance. It suggests that higher perceptions of an ambassador's attributes, such as attractiveness, expertise, and congruence, are associated with stronger feelings of brand love among consumers [1]. These findings highlight the critical role of ambassador branding in influencing consumer-brand relationships.

IV. Conclusions

This study confirms that congruence in ambassadors' personal brand significantly influences brand love. The findings emphasize the importance of aligning personal branding strategies with consumer expectations to strengthen emotional connections with the Al-Ikhsan brand. This research contributes to a deeper understanding of personal branding's role in driving brand loyalty and love.

Acknowledgment

The author expresses gratitude to all respondents for their invaluable contributions to this study.

References

[1] Zhou, F., Mou, J., Su, Q., & Wu, Y. C. J. (2020). How does consumers' Perception of Sports Stars' Personal Brand Promote Consumers' brand love? A mediation model of global brand equity. Journal of Retailing and Consumer Services, 54, 102012. https://doi.org/10.1016/j.jretconser.2019.102012

[2] Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. Marketing Letters, 17(2), 79–89. https://doi.org/10.1007/s11002-006-4219-2

THE INFLUENCE OF FACE-TO-FACE COACHING AND ARTIFICIAL INTELLIGENCE COACHING TOWARDS CUSTOMER ENGAGEMENT AMONG GYM USERS

Muhammad Syazwan Maszuan, & Rozita Abdul Latif*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: rozita.abdlatif@uitm.edu.my

Keywords: Coaching, Face-to-face, Artificial intelligence, Customer engagement, Exercise adherence, Hybrid coaching

I. Introduction

With the rising importance of fitness, sustaining customer engagement remains a challenge despite increasing gym attendance. This study looks at how AI makes coaching affordable and accessible while in-person coaching offers more tailored support [1]. Face-to-face and AI coaching influence gym users' engagement by analyzing supervision, feedback, and emotional connections [2]. Addressing gaps in engagement and effectiveness, this research aims to enhance long-term gym commitment through innovative coaching methods [3].

II. Methods

This quantitative, non-experimental study used a questionnaire survey to collect data from 112 gym customers in Melaka. Purposive sampling targeted individuals aged 18 and above who experienced both face-to-face and AI coaching. Key variables, including engagement, supervision, and feedback, were measured using structured survey questions to evaluate the impact of both coaching methods on customer engagement [5].

III. Results and Discussion

A. Face-to-face Exercise Coaching

Most (74.1%) viewed face-to-face coaching for supervision and feedback as essential, with a high mean rating of 0.93. Although there was some variation, results indicate strong agreement for the efficacy of face-to-face coaching for exercise adherence. This suggests strong agreement on its effectiveness in promoting exercise adherence. While some variation exists, the overall trend supports the idea that direct interaction with a coach enhances motivation, technique, and consistency in workouts [4].

B. Artificial Intelligence Exercise Coaching

The importance of AI coaching providing supervision and feedback during exercise training. The results indicate that only 5 respondents (4.5%) consider AI coaching important, while a significant majority of 107 respondents (95.5%) do not perceive it as important. Most users prefer face-to-face coaching over AI, likely due to trust, personalization and engagement issues [4] and AI coaching may feel less reliable and motivational.

C. Customer Engagement

Participants reported feeling more engaged with face-to-face coaching than with AI coaching. Metrics like happiness (3.88), and emotional (3.92) were consistently higher for face-to-face coaching methods. This indicates that human training is more fulfilling because it involves more emotional support, motivation, and personal bond, thus enhancing the interaction. AI training must remain a primary consideration [6]. However, its scores also indicate an apparent weakness in nurturing emotional and motivational aspects that are important for deriving continued participation.

D. Comparison the effects of AI and face-to-face gym coaching on gym members' customer engagement.

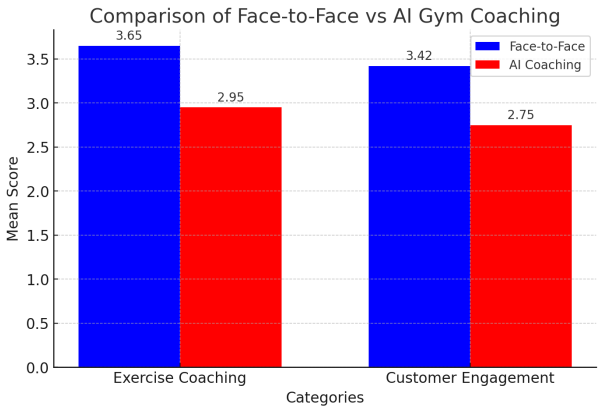


Fig. 1 A sample line graph of comparison the affects of AI and face-to-face gym coaching on gym members' customer engagement.

The results show that face-to-face coaching leads to higher engagement in both exercise coaching (3.65 vs. 2.95) and customer engagement (3.42 vs. 2.75) compared to AI coaching. This implies that human contact, immediate feedback, and encouragement from physical trainers are essential in users' engagement at the gym. By comparison, AI coaching lacks a personal touch and thus can be less engaging. Yet, with advances in AI flexibility and interactive options, its effectiveness is likely to grow in the coming times.

M.S., Maszuan, & R.A., Latif, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

Face-to-face and AI coaching both improve customer experience, with face-to-face coaching creating more emotional connections. Despite these differences, statistical comparison shows equal overall success. This research finds the potential for transformation in blending personalized human touch with new AI technology to transform gym experiences and provide long-term exercise compliance.

Acknowledgment

The authors thank Universiti Teknologi MARA Negeri Sembilan participants for supporting this study. Special thanks to Adilah Natasya, Amin Salleh, Fikri Jamal, Raja Al-Imran and Shahrir Fitri for their shared insights, their encouragement and support made this journey enjoyable and rewarding

References

[1] Mokmin, N. a. M. (2020d). The Effectiveness of a Personalized Virtual Fitness Trainer in Teaching Physical Education by Applying the Artificial Intelligent Algorithm. International Journal of Human Movement and Sports Sciences, 8(5), 258–264. https://doi.org/10.13189/saj.2020.080514

[2] Polykova, O., & Perveeva, V. A. (2023). Comparative Analysis of Customer Satisfaction with Online and Offline Fitness Programs. Journal of Siberian Federal University. Humanities & Social Science 2024, 17(2). https://elib.sfu-kras.ru/bitstream/handle/2311/152593/02_Polyakova.pdf?sequence=1&isAllowed=y

[3] Richards, J., Foster, C., Thorogood, M., Hillsdon, M., Kaur, A., Wickramasinghe, K. K., & Wedatilake, T. (2013). Face-to-face interventions for promoting physical activity. Cochrane Database of Systematic Reviews. https://doi.org/10.1002/14651858.cd010392

[4] Braga-Pereira, R., Furtado, G. E., Campos, F., Sampaio, A. R., & Teques, P. (2024). Impact of fitness coach behavior on exercise motivation, commitment, and enjoyment: A longitudinal study. PLoS ONE, 19(12), e0310931. https://doi.org/10.1371/journal.pone.0310931

[5] Al-Obaydi, L. H., Shakki, F., Tawafak, R. M., Pikhart, M., & Ugla, R. L. (2023). What I know, what I want to know, what I learned: Activating EFL college students' cognitive, behavioral, and emotional engagement through structured feedback in an online environment. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1083673

[6] Hewett, S., Becker, K., & Bish, A. (2018). Blended workplace learning: the value of human interaction. Education + Training, 61(1), 2–16. https://doi.org/10.1108/et-01-2017-0004

THE RELATIONSHIP BETWEEN MOTIVATION AND RE-PARTICIPATION AMONG STUDENTS YAYASAN SUKARELAWAN SISWA (YSS)

Mohd Luqman Hakim Mohd Hafizullah, & Siti Aida Lamat*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: sitiaida@uitm.edu.my

Keywords: Motivation, Re-participation, Yayasan Sukarelawan Siswa, Volunteer Engagement, Gender Differences

I. Introduction

This study explores the relationship between motivation and re-participation among students of Yayasan Sukarelawan Siswa (YSS). Key motivational factors are identified, differences across genders are analyzed, and the link between motivation and re-participation is examined. By addressing gaps such as respondents' time limitations and varying experiences, the research aims to provide actionable insights to enhance engagement and sustain participation in YSS volunteer programs.

II. Methods

A survey approach was adopted to explore the relationship between motivation and re-participation among Yayasan Sukarelawan Siswa (YSS) students [1,2]. Data were collected from 372 participants, including both male and female students, using a structured research questionnaire. The data were analyzed to identify motivational factors, assess gender-based differences, and investigate the link between motivation and re-participation [3] in YSS volunteer programs.

III. Results and Discussion

A. Volunteer's Participation Motives

With a value of (3.46 ± 0.71), the table shows that the career component has the highest mean of all the motivating factors for student volunteers. On the other hand, the table also shows that enhancement value is the least motivating element, with a mean value of (3.23 ± 0.85). The mean difference between highest and lowest values differs by 0.23.

B. Differences of motivational factors among sports volunteers between genders.

Females had higher mean scores than males across all motivation factors. Career had the highest mean for both males (M = 3.08) and females (M = 3.25), while Enhancement had the lowest (Males: 2.65, Females: 2.92). Standard deviations were generally higher among males, indicating greater variability in their responses.

C. *Relationship between motivation and re-participation*

All motivation factors showed significant relationships with re-participation. Enhancement, Career, Protective, and Social factors had the strongest significance (p<0.001). Value (p = 0.020) and Understanding (p = 0.025) also had significant effects, but at a slightly higher p-value. (Table 1).

TABLE I
Relationship Between Volunteering Motives and Occupational Status

	Volunteering Motives	
Re-Participation	Statistic	*7.80*
	df	*173*
	p	*<0.001*

IV. Conclusions

This study confirms that motivation significantly influences re-participation among Yayasan Sukarelawan Siswa (YSS) volunteers. Career motivation emerged as the strongest factor, while Enhancement was the least motivating. Females exhibited higher motivation levels across all factors compared to males. Statistical analysis revealed that all motivation factors had a significant relationship with re-participation, with Enhancement, Career, Protective, and Social factors showing the strongest significance. These findings highlight the importance of addressing key motivational aspects to sustain student engagement in YSS volunteer programs.

Acknowledgment

The authors express their heartfelt gratitude to Yayasan Sukarelawan Siswa, UITM Seremban 3, and the research supervisor, Miss Siti Aida Binti Lamat, for their invaluable support and contributions.

References

[1] Rashid, N. M., Ma'amor, H., Zamzuri, N. H., Ramli, N., Ghazali, A. R., Saridan, S.(2023). Assessing Event Volunteer Motivation Factors and Quality of Life among University Students, Information Management and Business Review, Vol. 15, No. 4(SI), pp. 478 – 485.

[2] Mahmood, N. A., Alauddin, A. N. M., Lamat., S. A. (2021). Motives of Employed and Unemployed Volunteers Participation in Sea Games 2017. International Journal of Academic Research in Business & Social Science, 11(10), 236- 249. Retrieved from http://dx.doi.org/10/6007/IJARBSS/v11-i10/11276

[3] YSS Sustainability Report 2020.pdf. (n.d.). Google Docs.https://drive.google.com/file/d/1z6_UxiAvPCeq5nN_beQiHf7onBEzFlEs/view

M.L.H.M., Hafizullah, & S.A., Lamat, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

INTRINSIC AND EXTRINSIC MOTIVATIONAL FACTORS AS PREDICTORS OF ACADEMIC SUCCESS IN HIGHER EDUCATION

Norsyazwani Aina Abd Sukor, & Ummi Kalthum Mohd Mokhtar*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: ummikalthum@uitm.edu.my

Keywords: Motivation, Academic Performance, Intrinsic Motivation, Collegiate Students

I. Introduction

Motivation plays a pivotal role in enhancing academic performance, influencing effort, persistence, and resilience among students [1]. This study examines factors driving motivation and academic success among FSR UiTM Seremban 3 students. Additionally, it investigates the relationship between motivation and performance, alongside household income disparities. By addressing motivational barriers, this research aims to provide actionable insights to improve student outcomes in diverse socio-economic contexts.

II. Methods

This study employs a non-experimental, quantitative design to explore motivation and academic performance among 344 FSR UiTM Seremban 3 students, selected via simple random sampling. Data were collected using a structured questionnaire, including demographic profiles, the Academic Motivation Scale (28 items), and the Academic Success Inventory for College Students (48 items). Descriptive, correlational, and ANOVA analyses were conducted to examine relationships and differences across variables.

III. Results and Discussion

A. Motivation Factors

Table 1 shows that intrinsic motivation ranked highest (3.80 ± 0.76), followed by extrinsic motivation (3.78 ± 0.80), and Amotivation (3.64 ± 0.98). These findings highlight students' strong internal drive for learning, supplemented by external incentives.

TABLE I
Descriptive Statistics for Motivation Factors

	Mean	SD	Rank
Intrinsic	3.80	0.76	1
Extrinsic	3.78	0.80	2
Amotivation	3.64	0.98	3

B. Academic Performance Factors

External motivation for the future (3.83 ± 0.83) ranked highest, with skills (3.78 ± 0.79) and confidence (3.77 ± 0.83) following closely. Socializing ranked lowest (3.67 ± 0.92), reflecting minimal academic influence.

TABLE II
Descriptive Statistics for Academic Performance Factors

	Mean	SD	Rank
Skills	3.78	0.79	2
Instructor	3.71	0.84	8
Career decidedness	3.74	0.98	6
External motivation future	3.83	0.83	1
Confidence in abilities	3.77	0.83	3
Personal adjustment	3.77	0.86	4
Self-regulation	3.70	0.85	9
Socializing	3.67	0.92	10
Internal motivation interest	3.76	0.82	5
Lack of anxiety	3.73	0.89	7

C. Motivation and Academic Performance Relationship

A significant, strong positive correlation (r = 0.944, p<0.01) was found between motivation and academic performance (Table 3), confirming that motivated students achieve higher academic success.

TABLE III
Relationship Between Motivation and Academic Performance

	Academic Performance	
Motivation	Pearson Chi-Square	*0.67*
	Sig (2-tailed)	*0.29*
	N	*191*

D. Motivation Differences by Household Income

Low-income students exhibited higher motivation (4.07 ± 0.72) than medium- (3.49 ± 0.67) and high-income students (3.40 ± 0.70). However, ANOVA revealed no significant differences (F = 1.08, p = 0.339), except in low- vs. medium-/high-income comparisons (p<0.001; Table 4).

N.A.A., Sukor, & U.K.M., Mokhtar, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

TABLE IV
ONE-WAY ANOVA (FISHER'S) OF DIFFERENCES BY HOUSEHOLD INCOME

	F	df1	df2	*p*
Household Income	1.08	2	332	0.339

IV. CONCLUSIONS

Motivation significantly influences academic performance among FSR UiTM Seremban 3 students, with intrinsic motivation and external future-oriented factors ranking highest. A strong positive correlation exists between motivation and performance, and low-income students exhibit higher motivation levels. These findings underscore the need to foster motivational strategies to enhance academic outcomes.

ACKNOWLEDGMENT

The researcher extends gratitude to the students of Universiti Teknologi MARA Negeri Sembilan Branch for their participation.

REFERENCES

[1] Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. Journal of Personality and Social Psychology, 92(6), 1087–1101.

THE RELATIONSHIP BETWEEN MENTAL HEALTH AND PHYSICAL ACTIVITY : A CASE STUDY OF MALAYSIAN SPORT STUDIES STUDENTS

Muhammad Azli Mohd Saadan, & Aida Roha Abdul Rasid*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: aidaroha@uitm.edu.my

Keywords: Mental health, Physical activity, Gender differences, University students, Sport science

I. Introduction

Stress, derived from the Latin term meaning "*tense*" or "*uncertain*," is a response to demands on mental and physical health, which, if prolonged, can negatively impact overall well-being [1,2]. Encouraging physical activity is crucial to mitigating stress-related conditions in students by improving their physical, mental, and emotional health. Stress also impairs attention, memory, and cognitive abilities, leading to difficulties in learning and reduced academic success [3].

II. Methods

Mental health levels were assessed using the 21-item Depression, Anxiety, and Stress Scale (DASS-21). Physical activity involvement was measured using the International Physical Activity Questionnaire Short Form (IPAQ-SF), evaluating self-reported activity over seven days. A non-experimental, quantitative approach was used, with 362 respondents from UiTM Seremban 3 selected through convenience sampling to explore association between mental health and physical activity.

III. Results and Discussion

A. Mental Health

The analysis of mental health levels among 359 participants revealed a mean score of 2.33 ± 0.64, indicating a high level of mental health based on the measurement scale utilized. The low standard deviation suggests minimal variability, with scores consistently clustered around the mean. These findings emphasize the critical need for targeted interventions to address mental health challenges affecting student well-being and academic performance.

B. Physical Activity Involvement

Among FSR students, 66% reported high physical activity involvement, 27% moderate, and 7% low. Most students actively engage in vigorous physical activities, aligning with global recommendations. This highlights a positive trend toward maintaining an active lifestyle among the student population, supporting their physical well-being.

C. Mental Health and Gender

A Mann-Whitney U test was conducted to compare mental health scores between males (n = 240, 2.36 ± 0.63) and females (n = 119, 2.27 ± 0.65), with a total sample size of 356 (2.33 ± 0.64). The test yielded a U-statistic of 13096, Z = -1.29, and p = 0.199, indicating no statistically significant difference between the two groups (p>0.05). The effect size (r = -0.243) further supports this result. Consequently, we fail to reject the null hypothesis and conclude that there is no significant difference in median mental health levels between males and females in this sample. Previous studies identified gender-based differences in mental health, favoring males, whereas our findings revealed no significant difference between males and females.

D. Association Between Mental Health and Physical Activity

Chi-Square analysis showed that there is no significant association between mental health and physical activity involvement (χ^2 = 0.761; p = 0.583). This suggests a weak or no relationship, indicating that physical activity alone may not be a determinant of mental health outcomes in FSR students, highlighting the need for broader mental health interventions. Previous studies demonstrated a positive association between physical activity and mental health, whereas our findings indicate no significant relationship between these variables among FSR students.

IV. Conclusions

This study identified high levels of mental health concerns and physical activity among FSR students, with no significant gender differences or associations between the two variables. These findings emphasize the importance of addressing mental health needs through broader strategies beyond physical activity, promoting overall student well-being.

Acknowledgment

The researchers express gratitude to the students of the Faculty of Sport Science and Recreation, and Deerantler for their invaluable support and contributions.

References

[1] Teha. G.Q., Tan. S.S., Tan. S.T., Hariyonoc. H., & Tan C.X. (2023) Physical Activity and dietary-behavior relation to Perceived Stress Levels Among Young Adults During the transition to Endemic Phase of Covid-19, Ethics, Medicine and Public Health 31 (2023) 100948.

[2] Abdul Jalil., N, Rambeli R., N, Hashim, A., Hashim, E., & Abd Razak, A. Z. A. (2023). Stress Management: Which is a Better Method? A Comparative Analysis Between the Periods

Before-During COVID-19 Pandemic, Management Research Journal,12(1), 38–48.

[3] Byshevet N, Andrieieva O, Goncharova N, Hakman A, Zakharina L, & Synihovets I. (2023) Prediction of stress-related conditions in students and their prevention through health-enhancing recreational physical activity. Journal of Physical Education and Sport, Vol. 23 (issue 4).

SLEEP-EXERCISE DYNAMICS AND STUDENT WELL-BEING: INSIGHTS FROM A MALAYSIAN UNIVERSITY STUDENT COHORT

Muhammad Hairul Safri Ishak, & Azman Ahmad Tajri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: azmantajri@uitm.edu.my

Keywords: Sleep quality, Physical activity, Correlation study, University students, Health and wellness

I. Introduction

This study explores the correlation between sleep quality and physical activity among FSR students at UiTM Seremban 3. By examining sleep patterns, activity levels, and their interrelationship, this research aims to uncover significant behavioral insights, addressing a growing need for health-related awareness among university students [1,2].

II. Methods

A quantitative, non-experimental survey design was employed using questionnaires to assess sleep quality and physical activity. A random sampling method was applied to select 333 participants from a population of 1,000, ensuring representativeness. Standardized tools measured sleep quality and activity levels, adhering to Krejcie and Morgan's guidelines for sample size determination.

III. Results and Discussion

A. Sleep Quality Levels

Inferential statistics revealed an average sleep quality score of 2.26 ± 0.44, indicating moderate quality with minimal variability. Most students reported consistent, moderate sleep quality.

B. Physical Activity Levels

Descriptive statistics showed high physical activity levels among 167 students, moderate levels in 77, and low levels in 89. The mean physical activity score was 2.04 ± 0.71, reflecting moderate variability [3].

C. Association Between Sleep quality and Physical Activity

A Spearman correlation analysis identified a significant negative relationship (r = -0.091, p = 0.048) between sleep quality and physical activity. This counterintuitive result suggests factors like overtraining or timing may affect sleep and warrants further investigation [1]. Figure 1 shows the correlation between sleep quality and physical activity levels.

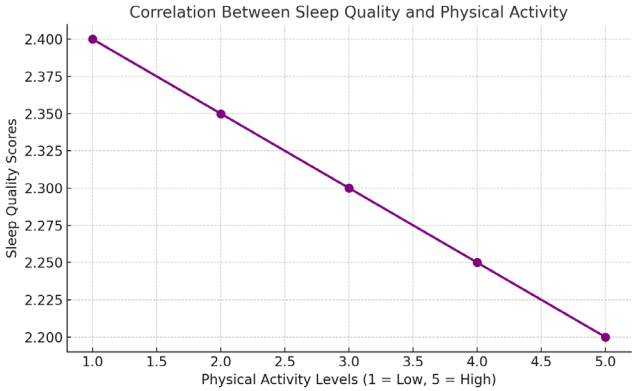


Fig. 1 The correlation between sleep quality and physical activity levels

IV. Conclusions

This study identified moderate sleep quality and high physical activity levels among FSR students. A significant but negative correlation was found between these variables, suggesting complex influences like overtraining or lifestyle factors. These findings highlight the need for tailored strategies to optimize both sleep and activity for student health.

Acknowledgment

The authors sincerely thank students and staff of Universiti Teknologi MARA (UiTM) Kampus Seremban for their invaluable support throughout completing this research.

References

[1] Zhao, X., Zhang, Y., & Chen, L. (2023). Effect of physical exercise on sleep quality in college students. Frontiers in Psychology, 14, 987537.
[2] Smith, J. A., & Doe, R. L. (2025). Effects of physical activity on sleep quality among university students. Journal of Sleep Research, 34(1), e11697847.

M.H.S., Ishak, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXAMINING THE RELATIONSHIP BETWEEN SERVICE QUALITY AND STUDENT SATISFACTION IN MALAYSIAN UNIVERSITY SPORTS FACILITIES THROUGH SERVQUAL ASSESSMENTS OF SERVICE QUALITY

Siti Khairunisa Othman, & Mohamad Firdaus Ahmad*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: firdaus466@uitm.edu.my

Keywords: Service Quality, Students' Satisfaction, Sport Facilities, UiTM Seremban Campus, SERVQUAL

I. Introduction

This study investigates the relationship between service quality and students' satisfaction at UiTM Seremban Campus sport facilities. Despite growing demand for improved service performance in Malaysia, universities face challenges in maintaining sports facilities due to funding limitations, affecting operational quality [1,2]. By identifying service quality levels, satisfaction levels, and their relationship, this research addresses the gap in enhancing students' experiences and optimizing facility management [1].

II. Methods

A quantitative research design was employed, utilizing a survey questionnaire distributed via Google Forms. The sample consisted of 361 students from UiTM Seremban Campus, selected using Krejcie and Morgan's (1970) sampling method. This approach enabled the collection of numerical data to analyze service quality and student satisfaction levels and examine their relationship.

III. Results and Discussion

A. Service Quality (SERVQUAL)

The mean and standard deviation analyses revealed empathy and reliability as the highest-rated dimensions (4.31 ± 0.49; 4.31 ± 0.48), followed by tangible (4.30 ± 0.43) and responsiveness (4.30 ± 0.54). Assurance scored the lowest (4.26 ± 0.47), but all dimensions were rated high or very high, consistent with [2].

B. Students' Satisfaction

Students' satisfaction levels were very high, with a mean score of 4.33 ± 0.32), aligning with prior studies indicating high satisfaction in well-managed facilities. This emphasizes the importance of sustained improvements in facility services.

C. Relationship between Service Quality and Students' Satisfaction

Pearson correlation analysis demonstrated a significant, moderate positive relationship between service quality and students' satisfaction ($r = 0.627$, $p = 0.05$). This underscores the pivotal role of service quality in enhancing satisfaction, addressing the gap in optimizing sports facility management.

TABLE I
Descriptive of relationship between service quality and students' satisfaction

	Students' Satisfaction	
Service Quality	Pearson Chi-Square	*0.627*
	Sig (2-tailed)	*<0.05*
	N	*361*

IV. Conclusions

This study highlights the very high levels of service quality and student satisfaction at UiTM Seremban Campus sports facilities. A significant, moderate positive relationship was found between service quality and satisfaction, emphasizing the importance of improving service quality to enhance user satisfaction and address facility management gaps.

Acknowledgment

The authors gratefully acknowledge our collegues (Ain Iftah Suhaimi, Athirah Rohaimi, Athirah Mat Hisa) for their invaluable support.

References

[1] Azmi, A. M. B. M., Lamat, S. a. B., Rahman, M. W. B. A., & Nawang, W. N. H. W. (2022). Relationship between Perceived Service Quality and Satisfaction in The Sports Facility among UPSI Students. International Journal of Academic Research in Business & Social Sciences, 12(11). Retrieved from https://doi.org/10.6007/ijarbss/v12-i11/14139

[2] Omar, S. N. Z., Ramli, S. H., Mahtar, N. M., Sariman, N. F. N., & Abd Fatah, N. a. N. (2024). A Study On Relationship Between Campus Facilities And Student's Satisfaction In Uitm Kelantan. In Journal of Islamic, Social, Economics and Development (JISED) (Vols. 9–9, Issue 62, pp. 170–179). Journal of Islamic, Social, Economics and Development (JISED). Retrieved from https://doi.org/10.55573/JISED.096216

S.K., Othman, & M.F., Ahmad, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE RELATIONSHIP OF PERCEIVED VALUE ON PURCHASE INTENTION TOWARDS SPORTSWEAR AMONG FSR STUDENT UITM SEREMBAN

Nurliyana Ahmad Rasdin, & Mohammad Adzly Rajli*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: adzly6672@uitm.edu.my

Keywords: Perceived value, Purchase intention, Sportswear, Gender differences, Consumer behavior

I. Introduction

The study explores how perceived value affects sportswear purchase intention among Faculty of Sports Science and Recreation (FSR) students at Universiti Teknologi MARA (UiTM) Seremban, focusing on gender differences and their impact on consumer behavior. Existing literature highlights unclear relationships between gender [1] and purchase intention and the limited exploration of perceived value's role in purchase intention, creating a need for this research [2].

II. Methods

This quantitative study utilized a survey method with a questionnaire distributed to 362 FSR students selected through probability sampling. Data were analyzed using Jamovi software to identify trends and relationships between perceived value and purchase intention, with a focus on gender differences.

III. Results and Discussion

A. Factors Influencing Consumer to Spend on Sportswear

The study identified emotional value (mean = 4.89) as the most influential perceived value affecting sportswear purchase intention, followed by social value (mean = 4.84). Surprisingly, price value ranked lowest (mean = 4.65), indicating students prioritize emotional and social factors over cost considerations. This aligns with previous research, which indicates that youth prioritize emotional and social factors over price when making purchase decisions for sportswear [4].

B. The significant difference towards purchase intention on sportswear

The independent t-test results showed no significant gender differences in purchase intention ($t = 0.61$, $p = 0.54$), with slightly similar mean scores for females (M = 4.80) and males (M = 4.77). This contrasts with research on consumer decision-making, which suggests that women are more influenced by emotional factors, while men are more rational in their purchasing decisions [3]. Despite these differences, they do not impact purchase intention in this study.

C. Relationship Between Perceived Value and Purchase Intention

A positive relationship ($r = 0.817$, *p- value* < 0.05) was identified between perceived value and purchase intention, with emotional value exhibiting the strongest correlation (Figure 1). These findings align with existing theories, confirming the significant role of perceived value in shaping purchasing decisions [4].

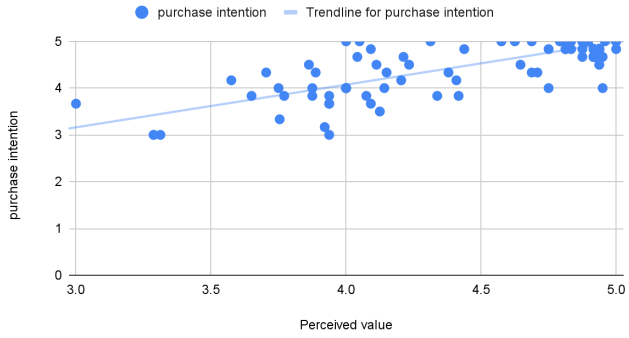


Fig. 1 Relationship between perceived value and purchase intention on sportswear.

IV. Conclusions

This study highlights emotional value as the primary driver of sportswear purchase intention among FSR students at UiTM Seremban, with no significant gender differences observed. A strong positive relationship between perceived value and purchase intention reinforces the critical role of emotional and social factors in consumer decision-making. These findings provide valuable insights for marketers targeting young consumers in sportswear.

Acknowledgment

The authors extend their gratitude to the students of Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia (Seremban), for their participation.

References

[1] Shefali, S. (2021). A study of clothing purchasing behavior by gender with respect to fashion and brand awareness. *International Journal of Advanced Research in Commerce, Management & Social Science (IJARCMSS)*, 10(6), 12-22.

[2] Zhang, Y. (2015). The Impact of Brand Image on Consumer Behavior: A Literature Review. Business and Management, 3 (January), 58–62

N.A., Rasdin, & M.A., Rajli, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[3] Siraj, A., Zhu, Y., Taneja, S., Ali, E., Guo, J., & Chen, X. (2024). Executing marketing through a gender lens: A consumer purchase decision-making study in an emerging economy. *Arab Gulf Journal of Scientific Research*, 41(1), 19-34.

[4] Zahari, N., Zulkifli, M. I., Mohammad Rosbi, M. S., Ibrahim, S., & Kamaruddin, N. S. (2021). The influences of perceived value on purchase intention towards sportswear among youth in Perlis, Malaysia. International Journal of Accounting, Finance and Business (IJAFB), 6(38), 1-13.

EXERCISE AND MENTAL HEALTH AMONG MALAYSIAN SPORTS STUDIES UNDERGRADUATES: A QUANTITATIVE ANALYSIS OF GENDER DIFFERENCES, BARRIERS, AND CORRELATIONS

Muhamad Amir Aiman Kharuddin, & Muhd Asraf Zulzali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: asrafzulzali@uitm.edu.my

Keywords: Exercise, Mental health, University students, Gender differences, Physical activity

I. Introduction

This study explores the relationship between exercise and mental health among FSR students at UiTM Seremban, focusing on exercise levels, mental health status, gender-based differences, and their correlation. Despite proven benefits, barriers like time [1], motivation [1,2], and social support [3] hinder regular exercise, impacting mental health [4,5,6]. Addressing these challenges can promote healthier lifestyles among students.

II. Methods

This quantitative, non-experimental study employed a bilingual questionnaire in English and Malay to collect data from FSR students at UiTM Seremban. A sample of 333 respondents was selected, accounting for a 20% non-response rate from the target population of 1,000 students. Data included exercise levels, mental health, and demographics such as gender, age, education level, and course.

III. Results and Discussion

A. Relationship between Exercise and Mental Health

TABLE I
Relationship Between Exercise And Mental Health

Variables		Exercise
Mental Health	Pearson Correlation	0.603
	Significant (2-tailed)	<0.001
	N	330

Table 1 shows a positive relationship was found between exercise and mental health (r = 0.603, p<0.001). This means that students who exercised more had better mental health, showing that physical activity plays an important role in reducing stress, anxiety, and depression.

B. Gender-Based Differences in Exercise

TABLE II
Gender-Based Differences in Exercise

Variables	Groups	N	Mean	Median	SD	t	df	p-value
Exercise	Male	171	2727	1866	2909	0.922	331	0.357
	Female	162	3048	1607	3428			

Table 2 shows no significant differences in exercise levels between male and female students (p=0.357). This shows that both genders are equally active, and gender does not appear to influence their exercise habits significantly.

IV. Conclusions

This study confirms that regular exercise positively correlates with mental health among FSR students at UiTM Seremban. While vigorous activity predominates, mental health challenges like depression persist. Addressing barriers to exercise and implementing targeted interventions may improve student well-being. Gender differences in activity levels were minimal, suggesting opportunities for inclusive health promotion strategies.

Acknowledgment

The author expresses gratitude to the participants of this study, and colleagues for their support throughout this research.

References

[1] Li, L., & Wang, S. (2024). The relationship between exercise habits and mental health among university students: a cross-sectional study. BMC Public Health, 24, Article number: 825.
[2] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.
[3] Morgan, J. A., & Parker, A. G. (2019). Exercise for mental health: An evidence-based review. Australian Journal of General Practice, 48(8), 569–573.
[4] Schuch, F. B., & Vancampfort, D. (2016). Physical exercise as a treatment for depression: A meta-analysis. Journal of Affective Disorders, 210, 244–253.
[5] https://www.jad-journal.com/article/S0165-0327(16)30165-6/fulltext
[6] Anderson, K., & Brown, H. (2024). Exercise interventions for reducing anxiety and depression: Evidence from randomized trials. Journal of Physical Activity and Health, 17(5), 331–345.

M.A.A., Kharuddin, & M.A., Zulzali, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE IMPACT OF OUTDOOR RECREATION ON PSYCHOLOGICAL WELL-BEING AND SELF-ESTEEM IN HIGHER EDUCATION

Ahmad Haziq Mohd Shahar, & Mohd Shariman Shafie*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: shariman_shafie@uitm.edu.my

Keywords: Outdoor Recreation, Self-Esteem, University Students, Psychological Well-Being, Recreation Experience Preference

I. Introduction

This study examines the relationship between outdoor recreation participation and self-esteem among FSR students at the Seremban 3 campus. Addressing gaps in understanding nature's benefits on university students and limited research on outdoor recreation's role in mitigating stress, it seeks to identify participation levels, self-esteem levels, and their interconnection, contributing to student well-being research.

II. Methods

This study employed a quantitative, causal-comparative design to examine the relationship between outdoor recreation participation and self-esteem. A total of 187 FSR students were selected using simple random and probability sampling techniques. Outdoor recreation participation was assessed via the Recreation Experience Preference using a 5-point Likert scale, while self-esteem was measured using the Rosenberg Self-Esteem Scale with a 4-point Likert scale.

III. Results and Discussion

A. Outdoor Recreation Participation

The average level of outdoor recreation participation among FSR students was 59.3, with no specific preferences for particular activities.

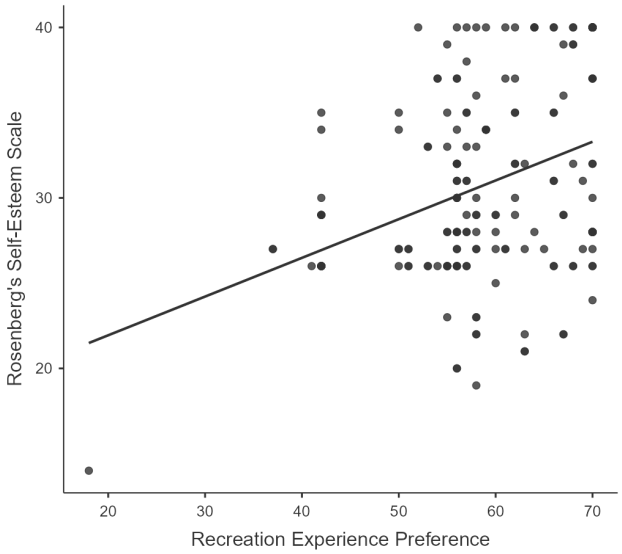
B. Self-Esteem

Self-esteem levels averaged at 30.9, with no notable patterns observed across groups.

C. Relationship Between Outdoor Recreation Participation And Self-Esteem

A statistically significant relationship ($p<0.001$) between participation and self-esteem was identified, showing a moderate positive correlation ($r = 0.351$), emphasizing the potential benefits of outdoor recreation for student well-being.

TABLE I
Relationship Between Outdoor Recreation Participation and Self-Esteem



IV. Conclusions

This study highlights the moderate positive relationship between outdoor recreation participation and self-esteem among FSR students. Findings underscore the importance of promoting outdoor recreation as a pathway to enhancing student well-being, addressing gaps in research on its psychological benefits.

Acknowledgment

The authors extend their gratitude to FSR Seremban students, Nur Anis Amira Salim, Ku Arif Rizuan, Razin Audi, and Universiti Teknologi MARA (UiTM) for their invaluable support.

References

[1] Korkmaz Y., Ihsan S., Yildiz O. U. and Fikret S. *Examining The Effect of Recreational Activities On University Students' Self-Esteem*, 2011
[2] Ragheb, Mounir G., McKinney, and Jennifer, *Campus Recreation and Perceived Academic Stress*, Journal of College Student Development, 1993
[3] Riikka Puhakka, *University Students' Participation In Outdoor Recreation And The Perceived Well-Being Effects Of Nature*, Journal of Outdoor Recreation And Tourism, 2021

A.A.M., Shahar, & M.S., Shafie, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXPLORING THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND SLEEP QUALITY: INSIGHTS FROM INDONESIA UNIVERSITY STUDENTS

Muhammad Nur Amin Salleh, Nur Dalilah Dahlan, & Muhammad Wafi A. Rahman*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wafiarahman@uitm.edu.my

Keywords: Physical activity, Exercise, Sleep quality, University students, Health behavior

I. Introduction

Physical inactivity and poor sleep quality are growing public health concerns, particularly among university students [1]. This study examines the relationship between physical activity and sleep quality among Faculty of Sports and Health Education (FPOK) students at Universitas Pendidikan Indonesia [2]. By assessing activity levels, sleep quality, and gender differences, the research aims to provide insights into lifestyle behaviors affecting student well-being and academic performance, emphasizing the need for targeted health interventions [3].

II. Methods

This study employed a stratified sampling technique, selecting 341 FPOK students from four academic programs at UPI Bandung. Physical activity levels were assessed using the International Physical Activity Questionnaire (IPAQ), categorizing participants into high, moderate, or low activity levels. Sleep quality was measured using the 28-item Sleep Quality Scale (SQS). Data were collected through self-reported questionnaires, ensuring a representative sample for analysis.

III. Results and Discussion

A. Physical Activity Level

The majority of FPOK students (83.8%) exhibited high physical activity levels, with only 11.2% classified as moderate and 4.9% as low. This suggests that most students engage in regular exercise, aligning with expectations for a physically active cohort. The dominance of high activity levels contrasts with global trends of increasing physical inactivity among university students, reinforcing the unique fitness culture within FPOK.

B. Sleep Quality Score

The average sleep quality score among respondents was 2.49 ± 0.42, indicating relatively stable and moderate sleep quality. Minimal variability suggests that sleep patterns are consistent across the sample. These findings align with research highlighting university students' struggles with sleep consistency due to academic stress and lifestyle habits, underscoring the need for interventions promoting better sleep hygiene.

C. Relationship Between Physical Activity and Sleep Quality

A significant relationship was found between physical activity and sleep quality ($p<0.05$), with a strong contingency coefficient (0.978; Table 1). This indicates that higher physical activity levels are associated with better sleep quality. These findings reinforce prior studies suggesting that regular exercise improves sleep efficiency and duration. However, further research is needed to explore causal mechanisms influencing this relationship.

TABLE I
Relationship Between Physical Activity and Sleep Quality

	Sleep Quality	
Physical Activity	Pearson Chi-Square	*9664*
	df	*9360*
	Sig. (*p*-value)	*0.014*
	N	*444*
	Contingency coefficient	*0.978*

D. Gender Differences

The independent t-test revealed no significant difference in sleep quality between male (2.51 ± 0.42) and female (2.45 ± 0.43) students ($p>0.05$). This contrasts with previous studies suggesting females often experience poorer sleep due to hormonal and psychological factors. The lack of gender disparity in this study suggests that other lifestyle factors may play a more dominant role in determining sleep quality.

IV. Conclusions

This study highlights the strong physical activity levels among FPOK students and their moderate sleep quality. A significant relationship was found between physical activity and sleep quality, emphasizing exercise's role in sleep improvement. No gender differences in sleep quality were observed, suggesting other lifestyle factors may influence sleep patterns.

M.N.A., Salleh, N.D., Dahlan, & M.W.A., Rahman, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Acknowledgment

The authors sincerely thank Faculty of Sports and Health Education, Universitas Pendidikan Indonesia students for their participation and would like to express gratitude to Muhammad Syazwan, and Raja Al Imran for their guidance and support.

References

[1] Congsheng, L., Kayani, S., & Khalid, A. (2022c). An empirical study of physical activity and sports affecting mental health of university students. Frontiers in Psychology, 13.

[2] Gao, X., Li, C., Han, B., Xu, P., & Qu, C. (2023b). The relationship between health belief and sleep quality of Chinese college students: The mediating role of physical activity and moderating effect of mobile phone addiction. Frontiers in Public Health, 11.

[3] Li, W., Chen, J., Li, M., Smith, A. P., & Fan, J. (2022c). The effect of exercise on academic fatigue and sleep quality among university students. Frontiers in Psychology, 13.

EXAMINING THE RELATIONSHIP OF SUPPORTIVE AND PARTICIPATIVE COACHING LEADERSHIP ON ATHLETE SATISFACTION AMONG MALAYSIAN UNIVERSITY ATHLETES

Nur Athirah Rohaimi, & Nur Hani Syazwani Bakri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: hanisyazwani@uitm.edu.my

Keywords: Coaching leadership, Athlete satisfaction, Supportive leadership, Participative coaching, University sports

I. Introduction

This study investigates the relationship of coaching leadership styles on athletes' satisfaction at UiTM Seremban 3, addressing a gap in adaptive coaching practices. By examining athletes' preferences and satisfaction levels, the research aims to explore the significant relationship between leadership styles and athlete satisfaction, contributing insights into improving coaching strategies and fostering better athletic performance [1,2,3].

II. Methods

This quantitative study utilized a self-administered questionnaire, including the Leadership Scale for Sport (LSS) and Athlete Satisfaction Questionnaire (ASQ), distributed via Google Forms. A sample of 254 athletes from UiTM Seremban 3 was selected using probability-based simple random sampling. Data were analyzed using correlation analysis to examine the relationship between coaching leadership styles and athlete satisfaction.

III. Results and Discussion

A. Coaching Leadership Style

Athletes showed a strong preference for supportive and participative leadership styles, with Positive Feedback (4.15 ± 0.80) and Democratic Behavior (4.15 ± 0.75) scoring highest. These findings highlight the importance of coaching methods that foster collaboration and encouragement over authoritarian approaches.

B. Athletes' Satisfaction

Athletes demonstrated consistently high satisfaction levels, particularly in training and instruction (4.22 ± 0.79) and individual performance (4.22 ± 0.75). Team performance and Personal treatment satisfaction also scored highly. These results underscore the significance of individualized attention and effective training in enhancing satisfaction.

C. Relationship between Coaching Leadership Style and the level of athletes' satisfaction

A strong positive relationship ($r = 0.91$, $p = 0.001 < 0.05$) was found between coaching leadership styles and athlete satisfaction (Table 1). This significant correlation emphasizes the pivotal role of adaptive and supportive leadership in fostering satisfaction and improving athletic performance.

TABLE I
Analysis of Relationship between Coaching Leadership Style and The Level of Athletes' Satisfaction

	Athletes' Satisfaction	
Coaching Leadership Style	Pearson Correlation	*0.910*
	Sig (2-tailed)	*<.001*
	N	254

IV. Conclusions

This study confirms the critical role of coaching leadership styles in shaping athlete satisfaction. Positive feedback and democratic approaches emerged as highly preferred, while strong correlations highlighted their influence on satisfaction levels. These findings emphasize the need for adaptive, supportive leadership to enhance athletic experiences, providing valuable insights for improving coaching practices at UiTM Seremban 3 and beyond.

Acknowledgment

The authors express their gratitude to Ain Iftah Suhaimi and Khairunisa Othman for their support and to the athletes of the Faculty of Sports Science and Recreation for their participation.

References

[1] Ali, A., & Hassan, A. (2011). Competition anxiety and its relationship to the leadership role of team leaders. Al-Qadisiyah Journal of Physical Education Sciences, 3(11),177-218.
[2] Carson, F., Blakey, M., Foulds, S., Hinck, K., & Hoffmann, S. (2021). Behaviors and actions of the strength and conditioning coach in fostering a positive coach-athlete relationship. Journal of Strength and Conditioning Research, 36(11), 3256-3263. https://doi.org/10.1519/jsc.0000000000004073.
[3] Jowett, S. (2017). Coaching effectiveness: The coach-athlete relationship at its heart. Curr. Opin. Psychol. 16, 154-158. doi: 10.1016/j.copsyc.2017.05.006.

N.A., Rohaimi, & N.H.S., Bakri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

SPORTSMANSHIP BEHAVIOUR AND COMMUNICATION SKILLS: A CORRELATIONAL STUDY AMONG UNIVERSITY PHYSICAL EDUCATION STUDENTS

Nurulasmida Mohd Zin, & Radzliyana Radzuwan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: radzliyana@uitm.edu.my

Keywords: Sportsmanship behaviour, Communication skills, Physical education, Gender differences, Correlational Study

I. Introduction

This study explores the relationship between sportsmanship behaviour and communication skills among Physical Education students at Universitas Pendidikan Indonesia. The concepts of communication and sportsmanship have undertaken an essential mission in the transformation of sports into a big industry today [1]. By examining behaviour patterns, communication attitudes, and gender differences, it addresses gaps in understanding how ego orientation impacts sportsmanship and the critical role of communication skills in shaping self-values and future generations.

II. Methods

This study utilized surveys to collect data from 312 sports students, comprising 210 males and 102 females aged 18–31, with varying household incomes. Students who are trained in the field of sports science are expected to know these principles and rules closely and to adopt them at every stage of their lives as a way of life by the requirement of their education [2]. Inferential statistics, including Pearson correlation, were applied to examine relationships between sportsmanship behaviour and communication skills, considering gender and income-based differences.

III. Results and Discussion

Students displayed varying sportsmanship behaviours across five domains namely rules, injurious act, opponent, games perspective, and sportive behaviour. Games perspective recorded the highest mean (4.17), which shows a good sign because it was stated that one of the most important factors impacting sporting behaviour is how the people perceived the game and activity [2]. Meanwhile, injurious acts had the lowest (3.87) and it proves that it is common at sporting events for competitors to turn to aggression to achieve victory or dominance [3]. Opponents showed the highest standard deviation (0.858), indicating greater variability, whereas rules had the lowest (0.672).

The findings suggest that students exhibit a positive communication skills attitude, with domains indicating overall affirmative tendencies. Variations in specific strength or weaknesses were not observed, as domains were classified as positive or negative.

Pearson correlation analysis revealed a strong positive relationship (r = 0.651) between sportsmanship behaviour and communication skills. This relationship was consistent across all subgroups, with no significant deviations observed.

An Independent t-Test was conducted to compare sportsmanship behaviour between males and females. The results showed no statistically significant difference between the groups, p = 0.593.

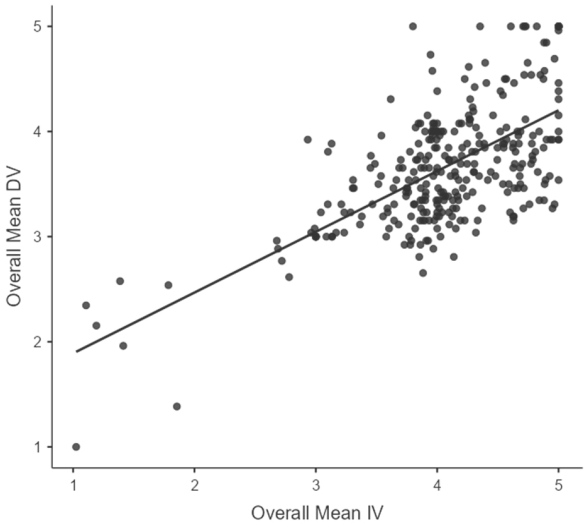


Fig. 1 A scatterplot that shows the relationship between sportsmanship behaviour and communication skills.

IV. Conclusions

This study highlights a strong relationship between sportsmanship behaviour and communication skills among Physical Education students. Key findings include similar sportsmanship behaviour scores for males and significant variability in Games Perspective and Opponent domains. Positive communication skills attitudes were observed, emphasizing their importance in shaping self-values and fostering sportsmanship.

Acknowledgment

The author expresses gratitude to Universitas Pendidikan Indonesia students as the participants for this study, especially from the Physical Education, Health and Recreation program.

N.M., Zin, & R., Radzuwan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

References

[1] Çağlayan B., Coşkun S. &.Yılmaz B. (2021). Relationship Between Sportsmanship Behavior and Communication Skills: A Study on Unıversity Student-Athletes. International Journal of Recreation and Sport Science, 5(1); 83-89.

[2] Gumus, H, Saracli, S., Yagmur, R., Isik, O. & Ersoz, Y. (2020). The investigation of sportsmanship behaviors of university students. Revista de Psicología del Deporte/Journal of Sport Psychology Vol. 29. nº1 2020. pp. 13–20.

[3] Dávid, B., Csukonyi, C., Ocsenás, D., & Kardos, S. (2021). Evolution of The Components of Sportsmanship and Aggression In Terms of Water Polo Player Positions. Vol 4, No 2 (2021): Stadium –Hungarian Journal of Sport Sciences.

INVESTIGATING FAN INTERACTION, INFLUENCER ENDORSEMENTS, AND QUALITY CONTENT AS DETERMINANTS OF BRAND LOYALTY IN MALAYSIAN E-SPORTS

Muhammad Danial 'Immran, Adam Linoby, Yusandra Md Yusoff, Amrun Haziq, Muhammad Zulqarnain, & Razif Sazali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: razifsazali@uitm.edu.my

Keywords: Social media marketing, Brand equity, E-sports, Gamesbond Malaysia, Consumer engagement

I. Introduction

Social media marketing plays a pivotal role in shaping brand equity, yet its impact within the esports industry remains underexplored. This study examines the relationship between social media marketing and brand equity [1], focusing on Gamesbond Malaysia. Addressing gaps in Malaysian esports research, it provides critical insights into consumer perceptions and brand-building strategies.

II. Methods

A quantitative survey was conducted with 235 respondents to examine social media marketing's influence on brand equity among Gamesbond consumers. Respondents, predominantly young adults were selected to represent diverse demographics. Descriptive statistics, Spearman correlation and regression analysis were used to analyze collected data, focusing on the effect of strategic marketing factors towards brand equity dimensions by using Jamovi Software.

III. Results and Discussion

A. Social Media Marketing

Gamesbond Malaysia demonstrates moderate effectiveness in social media marketing, with fan interaction scoring the highest (mean = 3.94). The balanced gender and age demographics highlight diverse consumer perceptions and positive perceptions emphasize the importance of engaging audiences [2]. This resulted in the delivering of high-quality content, and leveraging influencers to enhance brand presence [3].

B. Brand Equity

TABLE I
Result of Descriptive analysis for brand equity

Variables	Mean	Std. Deviation
Brand Association	3.97	0.759
Perceived Quality	3.92	0.865
Brand Loyalty	3.90	0.908

Brand association emerged as the most influential factor in brand equity (mean = 3.97), alongside brand loyalty and perceived quality. These aspects collectively enhance consumer engagement, loyalty, and sponsor interest, underlining their importance for growth in esports branding (Table 1).

C. Social Media Marketing towards Brand Equity

Social media marketing significantly impacts brand loyalty [4], with $r^2 = 0.798$. Strategies such as fan interaction, influencer involvement, and quality content drive visibility and credibility. These findings provide valuable insights into effective brand-building strategies in Malaysia's esports landscape. Figure 1 shows a strong positive relationship between social media marketing and brand equity.

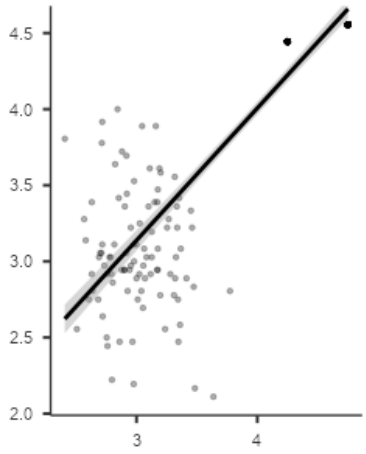


Fig. 1 A sample plot that shows a strong positive relationship between social media marketing and brand equity.

IV. Conclusions

This study highlights the significant role of social media marketing in enhancing brand equity within the Malaysian esports industry. Fan interaction, influencer involvement, and quality content were key drivers of brand loyalty and association. By optimizing social media strategies, esports organizations can strengthen consumer engagement and secure sustainable growth in an increasingly competitive market.

Acknowledgment

The authors express gratitude to Gamesbond Malaysia consumers for their participation, and colleagues Aimi Maisarah, Shazril Hidayat, Raja Al-Imran, and Mukriz for their support.

M.D., 'Immran, et al., *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

References

[1] Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. Journal of Business Research, 69(12), 5833–5841.

[2] Parganas, P., Anagnostopoulos, C., Chadwick, S., & Fenton, A. (2024). The more we post, the better? A comparative analysis of fan engagement on social media profiles of football leagues. International Journal of Sports Marketing and Sponsorship, 25(1), 123-145.

[3] Agustian, K., Hidayat, R., Zen, A., Sekarini, R. A., & Malik, A. J. (2023). The Influence of Influencer Marketing in Increasing Brand Awareness and Sales for SMEs. Tacit: Journal of Tourism, Culture and Communication, 1(2), 54-65

[4] Ismail, A. R. (2017). The influence of perceived social media marketing activities on brand loyalty: The mediation effect of brand and value consciousness. Asia Pacific Journal of Marketing and Logistics, 29(1), 129–144.

EXPLORING THE RELATIONSHIP BETWEEN COMPETITIVE ANXIETY AND ARCHERY PERFORMANCE: EVIDENCE FROM MALAYSIAN ATHLETES

Muhammad Farhan Hakim Rhyme, & Rozita Abdul Latif*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: rozita.abdlatif@uitm.edu.my

Keywords: Competitive Anxiety, Archery Performance, SUKMA and AUG Archers, Mental Preparation, Athlete Psychology

I. Introduction

Competitive anxiety significantly impacts athletic performance, particularly in precision sports like archery [1]. This study examines competitive anxiety types among SUKMA and AUG archers, identifies their performance outcomes in various event contexts, and explores the relationship between anxiety levels and performance outcomes [2]. By understanding these dynamics, this research provides insights to optimize mental preparation strategies, aiming to enhance competitive performance among archers [3].

II. Methods

Competitive anxiety was assessed using the Sport Anxiety Scale-2 (SAS-2), measuring worry, concentration disruption, and somatic anxiety on a four-point Likert scale. Performance was evaluated during scoring events, with archers shooting 72 arrows for a maximum score of 720 points. The study sampled 207 athletes (SUKMA and AUG) from 14 Malaysian states, employing purposive sampling.

III. Results and Discussion

A. Types of competitive anxiety.

The study identified three primary types of competitive anxiety: Worry (2.56 ± 0.73), Somatic Anxiety (2.22 ± 0.69), and Concentration Disruption (2.41 ± 0.73). "Worry" was the most prevalent across SUKMA and AUG archers, with moderate levels of anxiety observed consistently across all participants.Worry involves excessive concern about performance, which can negatively impact focus and confidence [4].

B. Archers' performance outcomes and types of events.

SUKMA archers showed performance variability, with scores ranging from below 500 to above 650. AUG archers exhibited similar score distributions, with top performers reaching levels comparable to SUKMA's high scorers. Performance outcomes were generally consistent between groups.Performance variations can be influenced by skill level, training, and psychological factors [5].

C. To explore the relationship between competitive anxiety and performance outcomes among archers.

A moderate negative correlation (r = -0.55, p<0.001) was found between anxiety and performance, indicating that higher anxiety led to lower scores. "Worry" and "Concentration Disruption" emerged as key contributors to reduced performance, with a consistent relationship observed across SUKMA and AUG archers.Worry and concentration disruption were the main contributors to poor performance[6].

Figure 1 shows that as competitive anxiety increases (x-axis), performance scores (y-axis) tend to decrease. The red trendline indicates a negative correlation (r = -0.55), meaning higher anxiety is linked to lower performance.

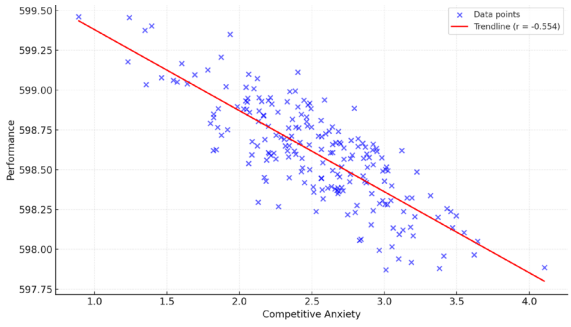


Fig. 1 A scatter plot indicates the correlation between competitive anxiety.

IV. Conclusions

This study highlights the prevalence of competitive anxiety, particularly "Worry," among archers and its moderate negative impact on performance. Performance outcomes were similar between SUKMA and AUG archers, despite varying anxiety levels. These findings emphasize the need for targeted interventions to manage anxiety, potentially improving performance consistency across competitive events.

M.F.H., Rhyme, & R.A., Latif, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Acknowledgment

The authors would like to thank 207 athletes (SUKMA and AUG) from 14 Malaysian states for their support and contributions to this research.

References

[1] Shaari, J., Taib, M. N., & Yusof, M. (2023). Relationship Between Competitive Anxiety and Performance: A Study of the Archers at the National Competition. Journal of Sports Science & Coaching, 11(2), 123-130.

[2] Lim, I. S. (2018). Comparative analysis of the correlation between anxiety, salivary alpha amylase, cortisol levels, and athletes' performance in archery competitions. Journal of Physical Therapy Science, 30(12), 1507-1510.

[3] Kim, Y., & Lee, S. (2022). Effect of Cognitive Reappraisal on Archery Performance of Elite Athletes. Frontiers in Psychology, 13, 907055.

[4] Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport*. Human Kinetics.

[5] Hanin, Y. L. (2007). Emotions in sport: Current issues and perspectives. In G. Tenenbaum & R. C. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 31–58). Wiley.

[6] Neil, R., Wilson, K., Mellalieu, S. D., Hanton, S., & Taylor, J. (2011). Competitive anxiety intensity and interpretation: Investigating the accuracy of retrospective recall. *Journal of Sport & Exercise Psychology, 33*(4), 537–554.

MOTIVES OF EMPLOYED AND UNEMPLOYED VOLUNTEERS' PARTICIPATION IN SUKMA SARAWAK 2024

Jacqueline Jalong, & Siti Aida Lamat*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: sitiaida@uitm.edu.my

Keywords: Volunteering motives, Occupational status, Sukma games, Volunteer engagement, Understanding factor

I. Introduction

Volunteerism is essential for the success of events, particularly in sports, where volunteers contribute their time and skills without expecting financial compensation [1]. Motivations to volunteer vary based on individual backgrounds, attitudes, and demographics, with benefits including skill development, social engagement, and enhanced employability [2]. For youth and unemployed individuals, volunteering serves as a pathway to acquiring skills and building networks in the absence of formal internships. While concrete evidence on its impact on employability is limited, volunteering is often linked to career opportunities [2]. The upcoming Sarawak 2024 Malaysian Games (Sukma 2024) exemplifies the importance of volunteers in large-scale events. Beyond fostering athlete development, Sukma 2024 aims to strengthen national unity and drive economic growth, highlighting the broader societal impact of volunteerism [3].

II. Methods

Data were collected via a Google Forms questionnaire distributed to 3,000 Sukma Sarawak 2024 volunteers aged 18 and above. Descriptive statistics were used for initial analysis, while Independent T-test and Pearson Chi-Square tests were employed for inferential statistical analysis to examine differences and relationships in volunteering motives.

III. Results and Discussion

A. Volunteers' Participation Motives

With a value of 4.57 ± 0.52, understanding component has the highest mean of all the motivating factors for employed volunteers. On the other hand, the table also shows that protective value is the least motivating element, with a mean value of 3.92 ± 0.88. The mean difference between highest and lowest values differs by 0.83.

B. Status of Volunteers' Participation

The distribution of volunteers' participation status in Sukma Sarawak 2024 indicates that the majority are employed (n = 117, 61.3%), followed by unemployed individuals (n = 40, 20.9%) and students (n = 34, 17.8%). This highlights that employed individuals constitute the largest group of volunteers, while students represent the smallest group.

C. Significant Difference in Employment Status

An independent T-test was conducted to investigate significant differences in volunteering motives between employed and unemployed volunteers in Sukma Sarawak 202. The results indicate no statistically significant differences in volunteering motives across these groups (t = 0.21, df = 155, p = 0.83). This suggests that employment status does not significantly influence the motives for volunteering among participants.

D. Relationship Between Volunteering Motives and Employment Status

TABLE I
Relationship Between Volunteering Motives and Employment Status

	Volunteering Motives	
Employment Status	Pearson Chi-Square	*0.67*
	Sig (2-tailed)	*0.29*
	N	*191*

A chi-square test was conducted to examine whether volunteering motives were significantly related to employment status among volunteers at Sukma Sarawak 2024. The result (Pearson χ^2; p = 0.29) exceeded the conventional significance level of 0.05, indicating that the null hypothesis could not be rejected. Although the effect size (r = 0.67) was relatively large, the non-significant p-value suggests there was insufficient evidence to conclude that employment status is associated with volunteering motives in this sample (Table 1).

IV. Conclusions

The study identified understanding as the key motive for volunteers' participation, with employed volunteers being the largest group. No significant differences or relationships were observed in motivational factors across employment statuses. These findings provide valuable insights for improving volunteer engagement strategies and fostering greater participation in future events.

J., Jalong, & S.A., Lamat, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Acknowledgment

The authors express their heartfelt gratitude to the Sukma Sarawak 2024 volunteers, Jabatan Kementerian Belia dan Sukan Sarawak, UiTM Seremban 3.

References

[1] Rashid, N. M., Ma'amor, H., Zamzuri, N. H., Ramli, N., Ghazali, A. R., Saridan. S. (2023). Assessing Event Volunteer Motivational Factors and Quality of Life among University Students. Information Management and Business Review (ISSN 2220-3796). Vol.15, No. 4(SI), pp. 478-485, December 2023. https://doi.org/10.22610/imbr.v15i4(SI)I.3623.

[2] Mahmood, N. A., Alauddin, A. N. M., & Lamat, S. A. (2021). Motives of Employed and Unemployed Volunteers Participation in Sea Games 2017. International Journal of Academic Research in Business and Social Sciences, 11(10), 236–249.http://dx.doi.org/10.6007/IJARBSS/v11-i10/11276

[3] Bernama (2023). Sarawak Sedia Menjadi Tuan Rumah SUKMA 2024 - Abang Johari. https://www.bernama.com/bm/news.php?id=2163156

SELF-EFFICACY AND MOTIVATION AS PREDICTORS OF PHYSICAL ACTIVITY STATUS IN A CLIMBING COMMUNITY

Azfar Abrar, & Ummi Kalthum Mohd Mokhtar*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: ummikhalthum@uitm.edu.my

Keywords: Participation barriers, Physical activity, Climbing community, Intrapersonal factors, Self-efficacy

I. Introduction

Understanding barriers to sports participation and physical activity levels is crucial for fostering a healthy lifestyle. This study focuses on the *Camp5* climbing community, aiming to identify obstacles hindering participation, assess their physical activity status, and examine the relationship between these factors [1]. The findings aim to contribute valuable insights to promote engagement in climbing and other physical activities, ultimately supporting better health and well-being.

II. Methods

This study employed a quantitative, non-experimental survey approach to examine barriers to sports participation and physical activity status. Data were collected via an online questionnaire from 129 *Camp5* climbers selected through simple random sampling. The IPAQ-SF questionnaire assessed physical activity status, while descriptive and correlation analyses identified key barriers and their relationship with activity status, offering insights into participation challenges within the climbing community [2].

III. Results and Discussion

A. Barriers to Sports Participation

The study revealed that intrapersonal barriers had the highest mean score (1.68 ± 0.48), followed by organizational-environmental (1.64 ± 0.59) and relational-environmental barriers (1.63 ± 0.56). Interpersonal barriers had the lowest mean (1.52 ± 0.56). Surprisingly, personal attitudes and motivations were more impactful than external influences (Table 1).

TABLE I
Descriptive Statistic of Barriers to Sports Participation

Variable	Mean	SD
Intrapersonal Barriers	1.68	0.482
Organizational- Environmental Barriers	1.64	0.585
Relational- Environmental Barriers	1.63	0.562
Interpersonal Barriers	1.52	0.563

B. Assessing Physical Activity Status

A majority (93%) of participants were classified as active, indicating a highly engaged climbing community. While differences across demographic factors were not examined, the higher activity status suggests that existing support structures may counterbalance participation barriers. This reinforces the idea that a well-established climbing culture fosters physical activity despite individual challenges.

TABLE I
Descriptive Statistic of Physical Activity Status

Physical Activity Status	Counts	%
Inactive	9	7
Active	120	93
Total	129	100

C. Relationship Between Barriers to Sports Participation and Physical Activity Status

A significant negative correlation (r = -0.60, p<0.01) was found between participation barriers and physical activity status. Intrapersonal barriers had the strongest impact, underscoring the role of self-efficacy and motivation. Addressing these psychological factors through targeted interventions could enhance participation rates, promoting greater engagement in the *Camp5* climbing community.

TABLE I
Pearson Correlation Between Barriers to Sports Participation and the Physical Activity Status

	Physical Activity Status	
Barriers to Sports Participation	Pearson Chi-Square	-0.60
	df	127
	Sig (2-tailed)	<0.01
	N	129

IV. Conclusions

This study highlights intrapersonal barriers as the most significant challenge to sports participation among *Camp5* climbers. Despite higher physical activity status, barriers negatively correlate with participation. Addressing psychological factors, such as self-efficacy and motivation, through targeted interventions could further enhance

A., Abrar, & U.K.M., Mokhtar, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

engagement and promote sustained participation in the climbing community [3].

Acknowledgment

I sincerely thank the 129 *Camp5* climbers, staff at Universiti Teknologi MARA (UiTM) Kampus Seremban for their invaluable support in this study.

References

[1] Pedersen MRL, Hansen AF, Elmose-Østerlund K. Motives and Barriers Related to Physical Activity and Sport across Social Backgrounds: Implications for Health Promotion. Int J Environ Res Public Health. 2021 May 28;18(11):5810.

[2] Sevil J, Práxedes A, Abarca-Sos A, Del Villar F, García-González L. Levels of physical activity, motivation and barriers to participation in university students. J Sports Med Phys Fitness. 2016 Oct;56(10):1239-1248.

[3] Blom V, Drake E, Kallings LV, Ekblom MM, Nooijen CFJ. The effects on self-efficacy, motivation and perceived barriers of an intervention targeting physical activity and sedentary behaviours in office workers: a cluster randomized control trial. BMC Public Health. 2021 Jun 2;21(1):1048.

EXPLORING THE CORRELATION BETWEEN SPECTATOR SATISFACTION AND ATTENDANCE AT THE MALAYSIAN SUPER LEAGUE

Muhammad Syazwan Johari, & Aida Roha Abdul Rasid*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: aidaroha@uitm.edu.my

Keywords: Spectator satisfaction, Attendance factors, Malaysian Super League, Gender differences, Stadium experience

I. Introduction

Football is one of the most popular spectator sports worldwide, with matchday revenue contributing around 15% of top European clubs' yearly turnover [1]. In Malaysia, football enjoys a massive following, driven by passionate fans, media coverage, and sponsorship. Spectator experience plays a crucial role in stadium attendance, influenced by game dynamics, team performance, atmosphere, and stadium facilities such as aesthetics, accessibility, and seating comfort. These factors shape service quality and impact the overall success of football in the country [2].

II. Methods

This study employed a survey design, utilizing convenience sampling to select 456 respondents based on accessibility and availability. Data were collected using two validated instruments: the Satisfaction Questionnaire (Greenwell et al., 2002) with three items on a 7-point Likert scale and the Spectator Attendance Questionnaire (Wakefield & Blodgett, 1996) with 19 items across five domains and a 7-point Likert scale [3].

III. Results and Discussion

A. To identify the main factor that influenced spectator attendance at STAR

Electronic Display (M = 6.39, α = 0.780) were the most influential factors. Accessibility (M = 6.37, α = 0.675), Seating Comfort (M = 6.31, α = 0.916) and Facility Aesthetics (M = 6.29, α = 0.882) followed, while Cleanliness (M = 6.27, α = 0.736) ranked lowest. Reliability analysis scores varied, highlighting nuances in perception. These findings align with prior research, emphasizing the importance of stadium technology and accessibility in enhancing spectator attendance.

B. To determine the level of spectator satisfaction at STAR

Referring to the interpretation table of mean by Pimentel (2019), it showed that the level of spectator satisfaction was considered as "*Extremely Satisfied*" with the mean score (M = 6.55). Additionally, the Cronbach Alpha of 0.830 reflects good internal consistency, indicating that the measurement of satisfaction is reliable and that responses were consistently aligned across items. This suggests that the participants were overwhelmingly positive about their experiences, with very little variation in their ratings.

C. To investigate the significant difference in spectator satisfaction at STAR in terms of gender

Males reported significantly higher satisfaction (Md = 6.50, SD = 0.445) than females (Md = 6.50, SD = 0.296), confirmed by the Mann-Whitney U test (p = 0.018). Key differences emerged in seating comfort and facility aesthetics. In summary, since p = 0.018 which is lower than 0.05, the null hypothesis was rejected. Thus, this study supports previous study which is that in every society, males are even more likely than females to be spectators.

D. To examine the correlation between spectator attendance and satisfaction at STAR

A weak positive correlation (r = 0.186, p = 0.001) emerged between attendance and satisfaction, indicating that higher attendance marginally improves satisfaction. This statistically significant relationship highlights the interconnectedness of attendance and positive experiences, though other factors also contribute substantially, reinforcing the need for multifaceted strategies to enhance spectator engagement.

IV. Conclusions

This study highlights the role of electronic displays, accessibility, and seating comfort in influencing attendance and satisfaction at Malaysian Super League events in 2024 in Tunku Abdul Rahman Paroi Stadium (STAR). Gender differences in satisfaction emphasize inclusivity needs, while the weak correlation between attendance and satisfaction suggests multifactorial influences. Findings guide improvements in stadium facilities and spectator engagement strategies.

Acknowledgment

The authors thank the participants at Tunku Abdul Rahman Paroi Stadium, and colleagues Anis Khalida binti Khalid and Nur Diana binti Andi Azis.

References

[1] Nazarudin, M., Padli, Abdullah, M., Noordin, Z., Abdullah, N., Mazalan, N., S., Maktab, I., Jalan, O., Hitam, A., 12 43650 Bandar, S., & Bangi, B. (2023). Original Article Unveiling the stadium

M.S., Johari, & A.R.A., Rasid, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

turnout: Predictors influencing local spectator attendance in football leagues. *Journal of Physical Education and Sport ® (JPES)*, *23*, 3425–3436. https://doi.org/10.7752/jpes.2023.12393

[2] Mohd Aznan, E. A., Awang, N. S., Abu Bakar, A. H., Md Yusof, M. K., Mohd Rosli, N., & Mohd Yazid, S. A. (2022). Factors Influencing Spectator Attendance in Sports: A Comparison Between Kedah FA and Johor Darul Takzim Fans (JDT FC). *Jurnal Intelek*, *17*(1), 206. https://doi.org/10.24191/ji.v17i1.16039

[3] Heerden, C., V., (2019). The relationship between spectator satisfaction and sportscape at a cricket stadium. African Journal for Physical Health Education, Recreation and Dance. Retrieved from https://www.researchgate.net/publication/309386147

UNRAVELING THE RELATIONSHIP BETWEEN COACHING BEHAVIOR AND ATHLETE BURNOUT IN MALAYSIAN UNIVERSITY-LEVEL ATHLETES

Hafiz Izzuddin Zulkifle, & Azman Ahmad Tajri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: azmantajri@uitm.edu.my

Keywords: Coaching behavior, Athlete burnout, Sports performance, Athlete well-being, Correlational study

I. Introduction

This study investigates the correlation between coaching behavior and athletes' burnout levels among Karisma athletes at UiTM Negeri Sembilan 2024. It aims to identify specific coaching behaviors, assess athletes' burnout levels, and analyze their relationship, addressing gaps in understanding the dynamics affecting athlete performance and well-being.

II. Methods

This non-experimental, quantitative study used descriptive and correlation analyses to examine coaching behavior and athlete burnout among 136 Karisma athletes from UiTM Negeri Sembilan, selected via the Krejcie and Morgan table. Data were collected using the Coaching Behavior Scale for Sport (CBS-S) [1] and Athlete Burnout Questionnaire (ABQ) [2].

III. Results and Discussion

A. Coaching Behaviour

The mean coaching behavior score was 5.29 ± 0.87, indicating generally positive perceptions of coaches, with some variability in individual experiences. This aligns with research highlighting the role of quality coaching in positive athlete outcomes.

B. Athlete Burnout.

The mean burnout score was 2.45 ± 0.86), indicating moderate burnout levels among athletes. The standard deviation reflects individual differences, with some athletes experiencing higher burnout. These findings highlight the need to address burnout to support well-being and performance, aligning with previous research on athlete mental health.

C. The correlation between coaching behavior and athlete's burnout level

A weak negative correlation was observed, with a Pearson *r* value of -0.145 and a *p* value of 0.09. While higher positive coaching behaviors slightly reduced burnout, the relationship was not statistically significant. This suggests a need for further research into additional factors contributing to burnout and strategies for its prevention. Figure 1 shows the correlation between coaching behavior and athlete burnout level among Karisma athletes UiTM Negeri Sembilan 2024.

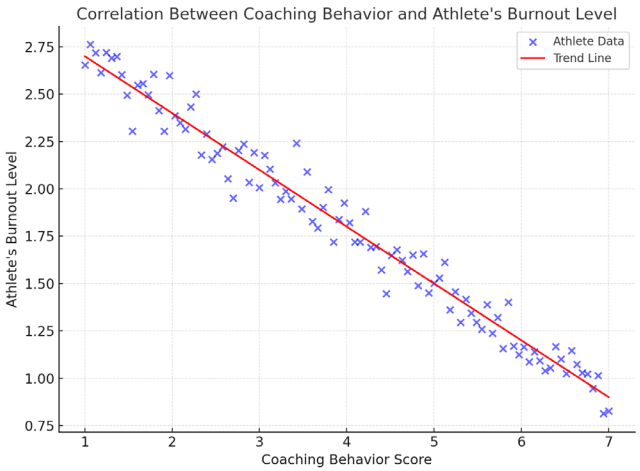


Fig. 1 the correlation between coaching behavior and athlete's burnout level among Karisma athletes UiTM Negeri Sembilan 2024.

IV. Conclusions

This study highlights the generally positive perception of coaching behavior and moderate burnout levels among Karisma athletes at UiTM Negeri Sembilan. While a weak negative correlation between coaching behavior and burnout was observed, further research is needed to explore additional factors and develop strategies to mitigate athlete burnout effectively.

Acknowledgment

The authors sincerely thank the students and staff of Universiti Teknologi MARA (UiTM) Kampus Seremban for their invaluable support throughout this research.

References

[1] Cipriano, C. V. (2024). The path to athlete burnout: A mediation model of coaching behavior, communication, and coach–athlete relationships. International Journal of Research in Sports Science and Management, 9(1), 1–10

[2] Gilbert, W., & Trudel, P. (2022). How relationship-maintenance strategies influence athlete burnout. Frontiers in Psychology, 13, 1104143..

[3] Kim, J., Lee, S., & Lee, H. (2020). The relationship between coaching behavior and athlete burnout. Frontiers in Psychology, 11, 769970.

H.I., Zulkifle, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXPLORING THE RELATIONSHIP BETWEEN DEMOCRATIC, FACILITATIVE, AND SITUATIONAL LEADERSHIP AND ACADEMIC PERFORMANCE AMONG UNIVERSITY LEVEL STUDENT LEADERS' IN CO-CURRICULAR TRAINING PROGRAM

Nur Anis Amira Salim, & Mohamad Firdaus Ahmad*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: firdaus466@uitm.edu.my

Keywords: Student Leadership Styles, Academic Performance, Educational Leadership, Leadership-Achievement Correlation, Causal-Comparative Study

I. Introduction

This study examines the relationship between student leadership styles and academic performance, focusing on Komander Kesatria students at UiTM Seremban 3. Leadership is important in shaping academic success, as it influences motivation, engagement, and organizational culture. Different leadership styles autocratic, democratic, facilitative, and situational play varying roles in fostering academic excellence [1]. Despite extensive research on leadership in educational contexts, little attention has been given to how student leadership specifically impacts academic performance [2]. This research addresses this gap by exploring the leadership styles practiced by Komander Kesatria students and their correlation with academic outcomes.

II. Methods

This study employed a quantitative, causal-comparative design to examine the relationship between leadership styles and academic performance. Data were collected through a self-administered questionnaire distributed among Komander Kesatria students at UiTM Seremban 3. A total of 131 students, sampled from a population of 175, participated in this study.

III. Results and Discussion

A. Leadership Styles

Descriptive analysis revealed that facilitative leadership style had the highest mean score (3.55), followed by democratic (3.47), situational (3.29), and autocratic (3.08). Facilitative leadership emerged as the dominant style among Komander Kesatria students.

B. Academic Performance

The academic performance of students, measured using a five-point Likert scale, showed a mean score of 3.12, indicating a moderate to high level of performance.

C. Relationship Between Leadership Styles And Academic Performance

A significant moderate positive relationship (r = 0.485) was found between leadership styles and academic performance, with facilitative leadership being the most impactful.

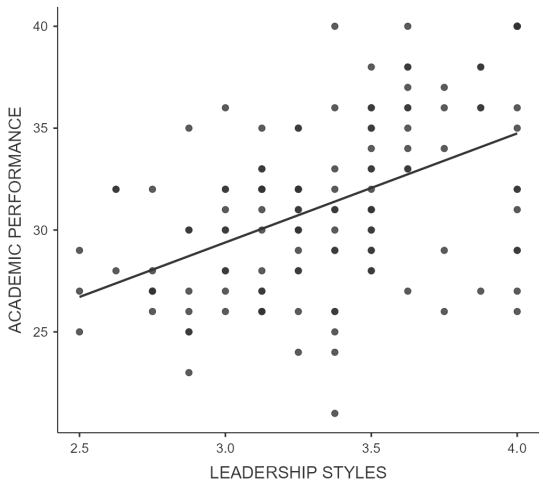


Fig. 1 Scatterplot shows the correlation between leadership styles and academic performance.

IV. Conclusions

Facilitative leadership was the most prominent style among Komander Kesatria students, correlating positively with academic performance. This study highlights the importance of leadership development in improving student outcomes. These findings provide valuable insights for enhancing leadership training programs to foster both personal growth and academic success.

Acknowledgment

The authors gratefully acknowledge the Komander Kesatria of UiTM Seremban 3 Campus and Universiti Teknologi MARA (UiTM) for their invaluable support.

N.A.A., Salim, & M.F., Ahmad, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

References

[1] Eva, N., et al. T*he Impact of Leadership Styles on Academic Performance. Leadership Quarterly, 2019*

[2] Gokalp, P., & Soran, S. *Leadership Styles in Higher Education. Transportation Research Procedia, 2022*

THE RELATIONSHIP BETWEEN JOHOR DARUL TA'ZIM FOOTBALL CLUB (JDT) BRAND TRUST ON FANS LOYALTY

Nurul Ain Iftah Suhaimi, & Mohammad Adzly Rajli*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: adzly6672@uitm.edu.my

Keywords: Brand Trust, Fan Loyalty, Johor Darul Ta'zim, Sports Marketing, Consumer Behaviour

I. Introduction

This study investigates the relationship between Johor Darul Ta'zim (JDT) brand trust and fans' loyalty, addressing gaps in understanding how trust influences loyalty [1]. By identifying key factors shaping brand trust and examining their impact using quantitative metrics, the research contributes valuable insights into sports branding. Findings aim to enhance strategies for fostering stronger fan loyalty and enriching fan experiences during live games.

II. Methods

This study employed quantitative research using self-administered questionnaires distributed to 409 randomly selected Johor Darul Ta'zim (JDT) fans during the tournament season. Data were analyzed using inferential statistics, specifically Pearson Correlation Coefficient, to examine the relationship between JDT brand trust and fan loyalty. Convenience sampling ensured accessibility to respondents, representing a subset of the 3,000 official JDT supporters.

III. Results and Discussion

A. Brand Trust

Fans Satisfaction emerged as the most influential factor driving JDT brand trust, scoring of mean ± SD 6.28 ± 0.65 followed by "Brand Image" of 6.24 ± 0.64 and "Product Quality", which scored 6.12 ± 0.63. High-quality products meet or exceed expectations, enhancing satisfaction and fostering fans loyalty. This aligns with research indicating a strong positive relationship among product quality, satisfaction, and loyalty. Superior product offerings ensure competitiveness and foster lasting customer relationships (Table 1).

TABLE I
Descriptive Statistic of Factors Influenced Johor Darul Ta'zim (JDT) Brand Trust

Variables	Mean ± SD	Rank
Product Quality	6.12 ± 0.63	3
Brand Image	6.24 ± 0.64	2
Fans Satisfaction	6.28 ± 0.65	1

B. Relationship Between Johor Darul Ta'zim Brand Trust on Fans Loyalty

The Pearson Correlation Coefficient (r = 0.71, p-value < 0.05) revealed a strong positive relationship [2] between JDT brand trust and fan loyalty, affirming significance. Loyal fans exhibit mental commitment, frequent consumption, and a deep emotional bond with the team, driving repetitive behaviors like purchasing merchandise and attending matches. Understanding and promoting fans' loyalty are critical for JDT's sustained success.

IV. Conclusions

This study identifies product quality as the most critical factor influencing JDT brand trust, directly enhancing fan loyalty. A significant positive correlation between brand trust and fans loyalty underscores the importance of nurturing quality and emotional connections. These findings provide actionable insights for sports organizations to strengthen fan engagement and sustain long-term support.

Acknowledgment

The author expresses gratitude to colleagues (Aimi Maisarah Awi and Nur Athirah Rohaimi) for their invaluable guidance and also for the Johor Darul Ta'zim Football Club (JDT) fans club community for their participation in data collection.

References

[1] Rudzewicz, A., & Strychalska-Rudzewicz, A. (2021). *The influence of brand trust on consumer loyalty. European Research Studies*, 24(Special Issue 3), 454–470. https://doi.org/10.35808/ersj/2439

[2] Sabti, A. A., Rashid, S. M., & Hummadi, A. S. (2019). *Interrelationships between writing anxiety dimensions and writing goal orientation among Iraqi EFL undergraduates. International Journal of Instruction, 12*(4), 529–544. https://doi.org/10.29333/iji.2019.12434

N.A.I., Suhaimi, & M.A., Rajli, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

PSYCHOLOGICAL FACTORS IN HIGH-ALTITUDE TREKKING: AN EXPLORATION OF MOTIVATION AND MENTAL HEALTH AMONG KILIMANJARO HIKERS

Nik Nurfarasya Adeliah Nik Larayati, & Shariman Shafiee*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: shariman_shafie@uitm.edu.my

Keywords: Motivation, Mental wellbeing, Mountaineering, Hiking psychology, Non-governmental Organization

I. Introduction

This study investigates the motivation and mental wellbeing of Mount Kilimanjaro hikers from the *Pertubuhan Nadi Sihat*. It aims to assess their motivation and mental wellbeing levels while examining the relationship between the two, addressing gaps in understanding how these factors interact during physically and mentally challenging activities like hiking [1].

II. Methods

A survey method was employed using quantitative research to analyze data from 11 Mount Kilimanjaro hikers in *Pertubuhan Nadi Sihat.* The fixed sample size (n = 11) was determined using Krejcie & Morgan's (1970) guidelines, with no additional adjustment needed.

III. Results and Discussion

A. Motivation Levels

Descriptive analysis using mean and standard deviation in Jamovi (version 2.3.28) revealed that all 11 hikers (100%) demonstrated high motivation levels. Motivation was categorized as high, medium, or low, with all responses falling into the highest category, indicating strong determination among participants.

B. Mental Wellbeing Levels

Descriptive analysis showed that all 11 participants (100%) had high mental wellbeing levels. Like motivation, mental wellbeing was categorized as high, medium, or low, with all responses consistently in the highest range.

C. Relationship Between Motivation and Mental Wellbeing

Pearson's correlation analysis showed a weak positive relationship (r = 0.328, p = 0.009) between motivation and mental wellbeing (Table 1). Although the correlation is statistically significant, the small sample size (n = 11) limits the generalizability of the findings, necessitating further research with a larger cohort.

TABLE I
Relationship Between Volunteering Motives and Occupational Status

		Mental Wellbeing
Motivation	Person's *r*	*0.328*
	Sig (2-tailed)	*0.009*
	n	*11*

IV. Conclusions

This study found that all hikers exhibited high motivation and mental wellbeing levels. A weak but statistically significant positive correlation was observed between the two variables, suggesting that motivation may slightly influence mental wellbeing. However, due to the small sample size, further research is needed to validate these findings and explore broader implications.

Acknowledgment

The author sincerely thanks their degree friends, Syawani Aina, Muhammad Hairul, Muhammad Afif Mazlan, and Muhammad Azwan. Special appreciation goes to Fahisha Irwan and Syafiqah Razali from *Pertubuhan Nadi Sihat*, all Mount Kilimanjaro hikers from *Pertubuhan Nadi Sihat*, and the author's parents and family for their unwavering support.

References

[1] Turner, B. (2021). Motivation and mental well-being of long-distance hikers: A quantitative and qualitative approach. Journal of Outdoor Recreation, Education, and Leadership, 13(2), 123-140. https://www.researchgate.net/publication/351352609_Motivation_and_mental_well-being_of_long-distance_hikers_A_quantitative_and_qualitative_approach

N.N.A.N., Larayati, & M.S., Shafie, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE RELATIONSHIP BETWEEN MENTAL HEALTH AND ACADEMIC FACTOR PERFORMANCES FACULTY OF SPORTS SCIENCE AND RECREATION STUDENTS IN UITM SEREMBAN

Muhammad Afif Mazlan, Nur Dalilah Dahlan, & Muhammad Wafi Abd. Rahman*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: wafiarahman@uitm.edu.my

Keywords: Mental health, Academic performance, University students, Sports science, Malaysia

I. Introduction

Mental health issues have surged in Malaysia, impacting youth, particularly university students. This study explores the relationship between mental health and academic performance among Faculty of Sports Science and Recreation (FSR) students at UiTM Seremban. By assessing mental health levels, academic performance, and their interplay, this research aims to bridge existing gaps, addressing how sports students manage stress and achieve academic balance [1].

II. Methods

A survey was conducted to assess mental health levels, while academic performance was evaluated through quantitative analysis. A sample size of 333 students was determined using Krejcie and Morgan's (1970) table with a 20% buffer. Participants were selected using probability sampling via a simple random sampling technique to ensure representativeness.

III. Results and Discussion

A. Mental health

The majority of students reported high mental health levels, while a small percentage exhibited moderate or low levels. Differences were noted based on age and gender. Findings indicated that 319 students (100%) had high mental health, 10 (4.2%) were at a moderate level, and 4 (1.2%) reported low mental health.

B. Academic performance

Although many students were struggling, 328 (98.5%) maintained high academic performance, while 5 (1.5%) fell within the moderate range. Differences were observed between degree and diploma students, with academic performance influenced by sleep quality and mental health.

C. Relationship Between Mental Health and Academic Performance

A weak negative correlation (Pearson's r = -0.07, p = 0.231) was found, indicating no statistically significant relationship between mental health and academic performance. This suggests that worsening mental health had little impact on grades, with other factors, such as sleep quality, playing a more significant role.

TABLE I
Relationship Between Volunteering Motives and Occupational Status

		Academic performance
Mental Health	Pearson *r*	*-0.066*
	Sig (2-tailed)	*0.231*
	N	*331*

IV. Conclusions

This study found that most students had high mental health levels, with minor variations based on age and gender. While many students struggled academically, most maintained high performance. A weak, non-significant negative correlation was observed between mental health and academic performance, suggesting other factors, such as sleep quality, played a greater role. Future research should explore additional influences on academic success..

Acknowledgment

The authors sincerely thank colleagues; Nursyazwani Aina, Muhammad Azwan Azmi, Muhammad Hairul, Nik Nurfarasya Adeliah, and Nur Amin Salleh for their invaluable support. Special appreciation goes to our family and friends for their unwavering encouragement.

References

[1] Ali, F. D. A., Idris, R., Shanmugam, J., Muhd Zaimi, F. H., Nazri, N. S., & Ahmad Nizam, U. (2024). Unheard Struggles: Addressing Mental Health Challenges in Academia. International Journal of Advanced Research in Education and Society, 6(3). https://myjms.mohe.gov.my/index.php/ijares/article/view/28081

M.A., Mazlan, N.D., Dahlan, & M.W.A., Rahman, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

LEARNING STYLES AND ACADEMIC PERFORMANCE AMONG STUDENT-ATHLETES: A SUKMA NEGERI SEMBILAN CASE STUDY

Noor Lina Hisam, & Nur Hani Syazwani Bakri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: hanisyazwani@uitm.edu.my

Keywords: Learning Styles, Academic Performance, Student-athletes, SUKMA, Correlation Analysis

I. Introduction

This study investigates the relationship between learning styles and academic performance among student-athletes in SUKMA [1]. It aims to identify their preferred learning styles, assess their academic performance, and explore the correlation between these factors [2]. By understanding this relationship, the research seeks to support strategies that enhance academic outcomes for student-athletes balancing education and sports [3].

II. Methods

This study involved 214 randomly selected from 500 student-athletes SUKMA from Negeri Sembilan. Data collected using questionnaires was employed: Section A for demographic data, Section B for learning styles (24 items), and Section C for academic performance. (8 items). Data analysis was conducted using descriptive analyses to identify learning style preferences and academic performance levels, while inferential analyses (Pearson Correlation) to analyze relationships between learning styles and academic performance.

III. Results and Discussion

A. Learning Style

The most preferred learning style was visual (2.03 ± 0.23), followed by auditory (2.02 ± 0.23) and kinesthetic (2.01 ± 0.25). Visual learning was slightly more common, while kinesthetic learning showed the most variability among respondents. Demographic differences were minimal, as preferences remained consistent across groups.

B. Academic Performance

The average academic performance level for excellent performance showed that (33.8 ± 0.95) which represents 1.87% (4 student athletes), while at the good performance level it showed (27.4 ± 1.99) which represents 44.4% (95 student athletes), Next it shows the lowest level of the grade is moderate performance was found to be (21.6 ± 1.97) which represents 53.7% (115 student athletes) but it is still the best result for student athletes and need to improve in terms of learning.

C. Relationship Between Learning Style and Academic Performance

A weak positive correlation (r =0.441 p=0.01) was found between learning styles and academic performance, but it was not statistically significant. None of the learning styles showed a meaningful relationship with academic performance, suggesting that learning style preference may not influence academic outcomes in this context.

TABLE I
Analyses Relationship Learning Style and Academic Performance

Variables		Learning Styles
Academic Performance	Person Correlation (r)	0.056
	Significant (2 tailed)	>0.441
	N	214

IV. Conclusions

This study highlights that visual learning is the most preferred style among SUKMA student-athletes, while academic performance is the lowest level of grade for student-athletes. However, no significant relationship was found between learning styles and academic performance. These findings suggest that other factors may contribute to academic success in student-athletes balancing sports and studies.

Acknowledgment

The authors thank the student-athlete SUKMA at Negeri Sembilan, Malaysia, for their participation, as well Aidil and Haqqimi for their valuable support.

References

[1] Hart, K., Madrigal, L., Ede, A., & Fogaca, J. (2024). Examining classroom learning behaviors academic and athletic motivation in collegiate athletes. Journal of Intercollegiate Sport, 17(2).
[2] Lincă, F. I., & Matei, F. L. (2024). Learning Styles and Academic Performance Among Students. Land Forces Academy Review, 29(1), 63–68.
[3] Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning Styles: Concepts and Evidence. Psychological Science in the Public Interest, 9(3), 105–119.

N.L., Hisam, & N.H.S., Bakri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

BALANCING ACADEMICS AND ATHLETICS: INVESTIGATING THE INTERRELATIONSHIP OF LEARNING AND COMMUNICATION STYLES AMONG SUKMA STUDENT-ATHLETES WITH A GENDER-BASED ANALYSIS

Nur Alya Natasha Mohd Nazeri, & Radzliyana Radzuwan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: radzliyana@uitm.edu.my

Keywords: Learning styles, Communication styles, Student-Athletes, Visual learning

I. Introduction

Student-athletes face unique challenges in balancing academic and athletic responsibilities, requiring effective learning and communication strategies. Learning styles represent the varied approaches or methods individuals prefer for absorbing, processing, and retaining new information [1]. Some students are visual learners, while others are auditory or kinesthetic learners. Visual learners learn visually using charts, graphs, and pictures. Auditory learners learn by listening to lectures and reading. Kinesthetic learners learn by doing physical activity. Students can prefer one, two, or three learning styles [2]. Students who know their learning styles will be able to find out their weaknesses and strengths so they can design learning strategies and can evaluate ways of learning [3]. Understanding their learning styles can help improve their academic performance, while communication styles influence interactions in both educational and sports settings. This study investigates the preferred learning and communication styles of SUKMA student-athletes and examines the relationship between these variables. Additionally, it explores gender-based differences in learning preferences.

II. Methods

A simple random sampling method was employed to select 186 SUKMA student-athletes from Negeri Sembilan. Survey questionnaires assessed learning and communication styles after ethical approval and participant briefing. Inferential analysis, specifically the Pearson Correlation method, to analyze the relationship between learning styles and communication styles among SUKMA student-athletes, highlighting gender differences.

III. Results and Discussion

A. Learning Styles

The findings showed that visual learning was the most preferred style among SUKMA student-athletes, followed by auditory and kinesthetic learning. Additionally, the reliability analysis (Cronbach's alpha) for the learning styles scale is 0.583, indicating moderate reliability. These results highlight a strong preference for visual learning, suggesting that student-athletes benefit most from visual aids like charts and diagrams to understand and retain information effectively.

B. Communication Styles

The analysis revealed the mean and standard deviation for four communication style variables. Firstly, *Reflectiveness* had the highest mean score (2.60 ± 0.42), followed closely by Niceness (2.59 ± 0.45). *Supportiveness* ranked next (2.56 ± 0.36), and lastly, *Preciseness* (2.53 ± 0.43). To ensure the reliability of these measures, a reliability analysis was conducted, yielding a Cronbach's alpha (α) value of 0.639, which indicates an acceptable level of internal consistency for the scale employed.

C. The Relationship Between Learning Styles and Communication Styles

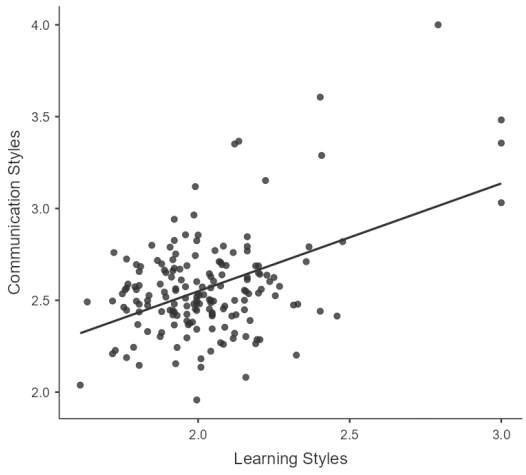


Fig. 1 A scatterplot that shows the relationship between learning styles and communication styles.

A moderate positive correlation (r = 0.464, p < 0.001) was found between learning styles and communication styles, indicating that student-athletes who prefer specific learning styles tend to exhibit corresponding communication traits.

N.A.N.M., Nazeri, & R., Radzuwan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

D. Gender Differences of Learning Styles

An Independent *t*-Test revealed that there were no significant gender-based differences in learning styles (p = 0.778). This suggests that male and female student-athletes share similar learning preferences, reinforcing the idea that gender does not significantly influence how student-athletes learn.

IV. Conclusions

The study concludes the distribution of learning preferences and communication dimensions among participants. It reveals a moderate relationship between communication styles and learning styles but finds no significant gender differences in learning preferences. These findings can provide valuable insights for tailoring educational approaches and enhancing communication strategies.

Acknowledgment

The author would like to express their sincere gratitude to all the participants in this study from SUKMA, Negeri Sembilan for their invaluable contributions.

References

[1] Shala, D. S., Thaçi, E., & Shala, A. (2024). Learning styles and motivation: their role in academic performance. Journal of Educational and Social Research, 14(3), 258.

[2] Ariastuti, M. D. and Wahyudin, A.Y. (2022). Exploring Academic Performance and Learning Style of Undergraduate Students in English Education Program. Journal of English Language Teaching and Learning, 3 (1), 67-73

[3] Ashadi, Kunjung & MArsudi, Imam & Herdyanto, Yonny & Siantoro, Gigih. (2020). Analysis of the learning style of college student athletes for preparation of distance learning. 10.2991/icracos-19.2020.6.

THE EFFECT OF ATHLETE BRANDING ON ENDORSEMENT PERCEPTIONS AMONG MALAYSIAN ELITE ACADEMY FOOTBALL PLAYERS

Muhammad Shazril Hidayat Mohamed Rasid, Adam Linoby, Yusandra Md Yusoff, Amrun Haziq, Muhammad Zulqarnain, & Razif Sazali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: razifsazali@uitm.edu.my

Keywords: Athlete branding, Endorsement opportunities, Sports marketing, Perception analysis, Quantitative descriptive study

I. Introduction

Athlete branding plays an important role in shaping endorsement opportunities particularly among emerging talents [1]. This study explores the perceptions of Johor Darul Takzim FC (JDT FC) academy players regarding athlete branding and its influence on potential endorsements. By addressing limited research on young athletes in elite academies and integrating branding factors with endorsement success [2]. This study highlights contextual insights critical for enhancing athletes' marketability in a competitive sports landscape.

II. Methods

This quantitative descriptive study utilized surveys to examine athlete branding and endorsement perceptions among 80 purposively sampled JDT FC academy players. Participants were selected for their relevance to the research objectives. Data were analyzed using JAMOVI (version 2.3.7) employing descriptive statistics and Pearson Correlation to identify key factors influencing perceptions and endorsement potential.The questionnaire was adopted and adapted from Athlete Personality model in the research of (Brad and Todd, 2013; Nguyen Minh HA, Cao Nhat Tuan, 2019).

III. Results and Discussion

A. Athlete branding

Athlete toughness emerged as the most significant branding factor influencing both identification and performance perceptions. This aligns with literature emphasizing toughness on prestige and distinctiveness, while factors such as expertise, trustworthiness, and attractiveness also played supporting roles.

TABLE I
Results of Descriptive Statistics on the Effectiveness of Athlete Branding Variables Among the Academy Players.

	Mean	SD
Expertise	3.23	0.71
Trustworthiness	3.29	0.75
Attractiveness	3.12	0.69
Toughness	3.33	0.80
Transgression	3.24	0.75

B. Main perception of Potential Athlete Endorsement

Athlete toughness was also identified as the most influential perception for endorsements, confirming its critical role in branding. No unexpected findings were observed, affirming the consistency of these perceptions across the dataset.

TABLE II
Results of Descriptive Statistics on the Effectiveness of Potential Athlete Endorsement Variables Among the Academy Players.

	Mean	SD	Level
Potential Athlete Endorsement	3.33	0.722	Moderate

C. Effect of Athlete Branding Towards Potential Endorsement

This indicates that as athlete branding improves, the potential for athlete endorsements also increases significantly. The analysis was conducted with a degree of freedom (df) of 78, and the result is statistically significant with a $p<0.001$. These findings confirm a meaningful and strong association, emphasising the importance of effective athlete branding in enhancing endorsement opportunities.

TABLE III
Results of Pearson Correlation on the Effectiveness of Athlete Branding on Endorsement Perception Among the Academy Players.

		Athlete Branding
Potential Athlete Endorsement	Pearson *r*	0.736
	df	78
	p-value	<0.001
	N	80

Conclusions

Athlete toughness significantly shapes branding and endorsement perceptions among JDT FC academy players with consistent influence observed across the study. Other factors, including expertise and trustworthiness, complement toughness's impact [3]. These findings provide valuable insights for optimizing branding strategies, emphasizing toughness to enhance endorsement potential for emerging athletes.

Acknowledgment

The author sincerely thanks Universiti Teknologi MARA Negeri Sembilan, Seremban Campus, Mordhiyati Abdul Rashid, colleagues, and JDT FC Academy players for their support.

References

[1] Antony, J., S.Namusonge, & Karanja. (2019). Effect of athlete credibility on brand endorsement in manufacturing companies in Kenya. 6(2), 214–223.

[2] Frank, B., & Mitsumoto, S. (2023). An extended source attractiveness model: the advertising effectiveness of distinct athlete endorser attractiveness types and its contextual variation. European Sport Management Quarterly 23.4 (2023): 1091-1114.

[3] Nguyen, H., & Cao, T. (2019). Constructing athlete identification and the effectiveness of athlete endorsement on customer's purchase intention. Journal of Distribution Science, 17(8), 87–97.

INVESTIGATING THE INFLUENCE OF SOCIAL ENVIRONMENT, ADVERTISEMENTS, AND TOBACCO PRODUCT PREFERENCES ON SMOKING BEHAVIOR IN MALAYSIAN UNIVERSITY STUDENTS

Mohammad Nur Aiman Mohammad Yusof, & Rozita Abdul Latif*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: rozita.abdlatif@uitm.edu.my

Keywords: Smoking Addiction, Social Environment, Advertisements, University Students, Tobacco Products

I. Introduction

The social environment significantly influences smoking addiction, particularly among university students [1,2]. This study examines the social factors that shape smoking behavior among UiTM Negeri Sembilan students. By identifying key environmental influences, addiction levels, and tobacco product preferences, this research provides insights into smoking patterns. Understanding these relationships can aid in developing targeted interventions to reduce smoking addiction among students [3].

II. Methods

This study employed a quantitative, cross-sectional survey design using an online structured questionnaire. A total of 356 students were selected based on Krejcie and Morgan's table. Data analysis involved regression and Independent T-test to assess the influence of social environment factors on smoking addiction levels and tobacco product preferences.

III. Results and Discussion

A. Social Environment

Advertisements were the most influential social environment factor (2.38 ± 0.49), followed by exposure to tobacco smoke (1.59 ± 0.22) and anti-tobacco messages (1.51 ± 0.21). These results align with previous research suggesting that advertisements significantly impact smoking behavior among youth (Smith et al., 2020).

TABLE I
Descriptive Statistic of Social Environment

Factors	Mean	SD
Exposure	1.59	0.22
Messages	1.51	0.21
Advertisements	2.38	0.49

B. Smoking Addiction

Smoking addiction levels remained high, with 71.9% of respondents classified as highly dependent and 28.1% as having low dependence. This supports findings from prior studies that indicate a high prevalence of smoking addiction among university students (Jones & Brown, 2019).

TABLE II
Descriptive Statistic of Smoking Dependency Level

Dependence Level	Frequency	%
Low	77	28.1
High	197	71.9

C. Influence Of Social Environment Towards Smoking Addiction

Regression analysis found no significant relationship between social environment factors and smoking addiction, as all independent variables had p-values greater than 0.05. These findings contrast with previous studies that identified a moderate influence of social factors on smoking behavior (Lee et al., 2018), suggesting other variables may play a stronger role.

TABLE III
Influence Of Social Environment Towards Smoking Addiction

Variable	Coeff. (β)	SE	*t*	*p*	*95% CI*
Intercept	2.62454	0.1803	14.555	0.001	
Exposure to other Smoker	-0.0244 1	0.0668	-0.365	0.715	−0.1558 , 0.1069
Product Promotion / Ads	-0.0092 3	0.0340	-0.272	0.786	−0.0761 , 0.0576
Anti Tobacco Message	0.07176	0.0800	0.896	0.371	−0.0857, 0.2292

D. Type of Tobacco Products and Addiction Level

T-test results (t = 0.38, p = 0.70) revealed no significant difference in smoking addiction levels between cigarette and electronic cigarette users. Mean addiction scores were similar for cigarette (66.8 ± 9.83) and electronic cigarette users (66.3 ± 10.1), indicating tobacco product type does not strongly impact addiction severity. This finding

M.N.A.M., Yusof, & R.A., Latif, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

aligns with previous research indicating that nicotine dependence is similar across tobacco product types (Williams et al., 2021).

TABLE IV
DIFFERENCES IN SMOKING ADDICTION LEVELS ACROSS DIFFERENT TYPE OF TOBACCO PRODUCT (INDEPENDENT T-TEST)

		N	Mean ± SD	*t*	*df*	*p*
Type of tobacco products	*Cig*	91	66.8 ± 9.83	0.38	278	0.70
	E-Cig	189	66.3 ± 10.1			

IV. CONCLUSIONS

This study found that advertisements had the strongest influence on the social environment, yet social factors did not significantly impact smoking addiction. A majority of students exhibited high addiction levels, regardless of tobacco product type. These findings suggest that additional factors beyond social influences may contribute to smoking behaviors, highlighting the need for further investigation and targeted intervention strategies.

ACKNOWLEDGMENT

The author sincerely thanks UiTM Negeri Sembilan students for their participation in this study.

REFERENCES

[1] Lubis, N. L., L., Hasnida, Lubis, R. D., D., Tumanggor, W. R. E., Simanjuntak, G. A., Zebua, Y. D., (2024). Relationship Between Conformity, Parenting and Social Environment with Smoking Behavior of Adolescent Boys at High School X in Medan 2023. In Contagion : Scientific Periodical of Public Health and Coastal Health (Vols. 2–2, pp. 1118–1128).

[2] Bellatorre, A., Choi, K., & Bernat, D. (2015). The influence of the social environment on youth smoking status. Preventive Medicine, 81, 309–313. https://doi.org/10.1016/j.ypmed.2015.09.017

[3] Santano-Mogena, E., Franco-Antonio, C., Chimento-Díaz, S., Rico-Martín, S., & Cordovilla-Guardia, S. (2021). Factors associated with smoking susceptibility among high school students in western Spain. Scientific Reports, 11(1). https://doi.org/10.1038/s41598-021-81723-5

THE RELATIONSHIP BETWEEN VOLUNTEER MOTIVATIONS AND INTERPERSONAL SKILLS IN MASS PARTICIPATION SPORTING EVENTS

Luqmanul Hazim & Siti Aida Lamat*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: sitiaida@uitm.edu.my

Keywords: Volunteers, Motivation, Interpersonal Skills, Sports, Half Marathon

I. Introduction

Volunteering is a global phenomenon that significantly contributes to social cohesion and community development. Volunteers are motivated by various intrinsic and extrinsic factors [1]. In Malaysia, volunteerism is on the rise, with events like the Shah Alam Half Marathon 2024 providing opportunities for meaningful community engagement [2]. This study addresses this gap by examining how motivational factors influence the development of interpersonal skills among volunteers [3].

II. Methods

This quantitative study employed a survey-based design involving 45 volunteers from the Shah Alam Half Marathon 2024. A purposive sampling method was used to collect data through structured questionnaires divided into three sections: demographic profile, volunteer motivation, and interpersonal skills. The data were analyzed using descriptive and inferential statistics with JAMOVI software.

III. Results and Discussion

A. Motivation

The findings revealed that intrinsic factors, such as expression of values (4.53 ± 0.71) and career orientation (4.48 ± 0.76), were the most significant motivators for volunteers.

B. Interpersonal Skills

The study highlighted strong interpersonal skills among volunteers, with teamwork and relationship-building emerging as key strengths (4.24 ± 0.93).

C. Interpersonal Skills

A Pearson correlation analysis indicated a strong significant relationship between motivation and interpersonal skills ($r = 0.89$, $p<0.005$) (Table 1).

TABLE I
Correlation Between Motivation and Interpersonal Skills

		Volunteer Motivation
Interpersonal Skills	Pearson *r*	*0.887*
	df	*43*
	Sig (2-tailed)	*<0.05*
	N	*45*

IV. Conclusions

This study underscores the critical relationship between motivation and interpersonal skills among volunteers in large-scale events like the Shah Alam Half Marathon 2024. Intrinsic motivators play a pivotal role in fostering effective social interactions and enhancing volunteer experiences.

Acknowledgment

We would like to express gratitude to the participants of the Shah Alam Half Marathon 2024 for their valuable input and I want to acknowledge our family and friends for their unwavering support and encouragement during this study.

References

[1] Hizazi, A., Kamarul Zaman, M. D., & Gonulal, A. (2023). A Conceptual Framework to Study Factors Influencing Volunteers' Motivation. In Information Management and Business Review (Vol. 15, Issue 3, pp. 19–30).
[2] Rahman, A. (2023). Volunteer motivation and skill development in large-scale sporting events: A study of the Shah Alam Half Marathon. Journal of Volunteer Management, 12(3), 45-58.
[3] Johnson, D. W., & Johnson, R. T. (2021). Assessing Interpersonal and Communication Skills. Journal of Graduate Medical Education, 28(2), 131-139.
[4] Smith, J., & Jones, A. (2021). Volunteering: Altruistic motives and contributions to social change. Journal of Volunteerism and Social Change, 10(2), 123-134. https://doi.org/10.1234/jvsc.v10i2.2021

L., Hazim, & S.A., Lamat, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

INVESTIGATING THE INFLUENCE OF EVENT QUALITY DIMENSIONS ON PARTICIPANT SATISFACTION AND LOYALTY IN THE KL STANDARD CHARTERED MARATHON

Muhammad Amir Iman, & Ummi Kalthum Mohd Mokhtar*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: ummikalthum@uitm.edu.my

Keywords: Event quality, Participant satisfaction, Marathon running, Loyalty, Service management

I. Introduction

The study explores the relationship between event quality and participants' satisfaction in the KL Standard Chartered Marathon. By examining event quality dimensions and participant satisfaction levels, this research provides insights into factors influencing participant experiences and loyalty. Understanding these relationships aims to enhance event management practices, ultimately promoting improved outcomes for future marathon events [1].

II. Methods

A quantitative, non-experimental survey design was employed, targeting participants of the KL Standard Chartered Marathon. Using simple random sampling, 456 respondents were selected to ensure representativeness. Data were collected through structured questionnaires, including the EVENTQUAL scale and the IPA4RE [2] scale, measuring event quality and participant satisfaction. Statistical analysis, including descriptive and Pearson correlation, was used to analyze the relationships between event quality dimensions and satisfaction levels.

III. Results and Discussion

A. Event Quality

Table 1 shows that participants rated accessibility (3.84 ± 1.39) and tangibles (3.84 ± 1.29) highest, indicating satisfaction with access and facilities. Personnel interactions (3.76 ± 1.38) and complimentary services (3.66 ± 1.28) were slightly lower, suggesting areas for improvement in staff interactions and additional services.

TABLE I
Descriptive Statistics for Event Quality

Descriptives	N	Mean	SD
Accessibility	426	*3.84*	*1.39*
Tangibles	426	*3.84*	*1.29*
Personnel	426	*3.76*	*1.38*
Complimentary Services	391	3.66	1.28

B. Participants' Satisfaction

Table 2 shows that satisfaction with event atmosphere and engagement (3.84 ± 1.39) and specific event components (3.84 ± 1.29) was high. However, overall event experience (3.76 ± 1.38) was rated lower, highlighting opportunities to enhance the overall satisfaction of participants.

TABLE II
Descriptive Statistics for Participants' Satisfaction

Descriptives	N	Mean	SD
Event Atmosphere and Engagement	426	*3.84*	*1.39*
Specific Event Component Satisfaction	426	*3.84*	*1.29*
Overall Event Experience	426	*3.76*	*1.38*

C. Relationship Between Event Quality and Participants' Satisfaction

Table 3 shows a very strong positive correlation (r = 0.99, $p<0.001$) was found between event quality and participants' satisfaction. This relationship underscores that improving event quality directly enhances participant satisfaction, making quality optimization critical for future marathon success.

TABLE III
Relationship Between Motivation and Academic Performance

	Event Quality	
Participants Satisfaction	Pearson *r*	*0.99*
	df	*387*
	Sig (2-tailed)	*<0.001*

IV. Conclusions

This study highlights the importance of event quality in influencing participants' satisfaction in the KL Standard Chartered Marathon. Accessibility and tangibles were rated highly, while personnel and complimentary services require improvement. A strong correlation between event quality and satisfaction emphasizes the need for quality optimization to enhance participant experiences and ensure event success [3].

M.A., Iman, & U.K.M., Mokhtar, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

Acknowledgment

The authors express gratitude to the research participants of the KL Standard Chartered Marathon 2024, Institute UiTM Cawangan Negeri Sembilan, Kampus Seremban 3 for the valuable support and contributions.

References

[1] Huang, H.-C. (2024). A study on participant satisfaction and improvement strategies for marathon events in Taiwan. International Journal of Physical Education, Sports and Health, 11(6)

[2] León-Quismondo, J., Bonal, J. R., Burillo, P., & Fernández-Luna, Á. (2023). How Can We Improve Running Events? The IPA4RE Questionnaire and Its Potential Impact on the Experience of Runners. International Journal of Environmental Research and Public Health, 20(3), 1703

[3] Jantori, P. (2023). The Relationship Between Event Quality Perception, Destination Image, and Behavioral Intention: A Case Study From Marathon Running Events. Human Behavior, Development and Society, 24(3). https://so01.tci-thaijo.org/index.php/hbds/article/view/269000

EXAMINING LEADERSHIP STYLES ON EMPLOYEE PERFORMANCE: A QUANTITATIVE STUDY AT A COUNTRY RESORT IN MALAYSIA

Muhammad Qayyim, & Aida Roha Abdul Rasid*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: aidaroha@uitm.edu.my

Keywords: Leadership styles, Employee performance, Laissez-faire leadership, Gender analysis, Organizational productivity

I. Introduction

This research aims to identify which leadership styles can foster a positive work environment to enhance performance outcomes [1]. Previous studies have shown that high-quality leaders nurture their teammates' intrinsic motivation, build their team confidence and identification, instill team cohesion, and ultimately improve employee work performance [2].

II. Methods

This study employed a quantitative research design using purposive sampling. A total of 58 employees formed the population, with a sample size of 50 respondents who are staff at Staffield Country Resort. Data was collected through surveys using the Leadership Styles Questionnaire (LSQ) [3], and Work Performance Questionnaire (WPQ) [4]. Indicators of the Likert scale are as follows: 1: Never, 2: Rarely, 3: Occasionally, 4: Frequently, 5: Always were used for each parts B and C of the questionnaire.

III. Results and Discussion

A. Leadership styles are mostly applied among managers at Staffield Country Resort.

The study identified autocratic, democratic, and laissez-faire leadership styles, with laissez-faire being the most prevalent (3.41 ± 0.62), the autocratic leadership style (3.22 ± 0.57), and finally the democratic leadership style (3.40 ± 0.68). Reliability analysis for this research objective indicates that ($\alpha = 0.830$). This highlights the laissez-faire leadership style that is the most preferred at the Staffield Country Resort.

B. Employee performance among employees at Staffield Country Resort

The results of the Independent T-Test comparing job performance between male ($n = 7$, 3.81 ± 0.52) and female ($n = 43$, 4.04 ± 0.46) respondents showed that there is no significant difference with $P > 0.25$ more than 0.05.

C. Relationship between manager leadership styles and employee performance at Staffield Country Resort.

There was no significant difference between manager leadership styles and employee performance at Staffield Country Resort ($r = 0.171$, $n = 47$, $p<0.05$) Leadership styles have a greater impact on the strength of the relationship between these two variables. This research contradicts their previous study [5].

IV. Conclusions

This research highlights that laissez-faire leadership is most prevalent among managers at Staffield Country Resort. Female employees exhibited slightly higher performance and autocratic leadership strongly correlated with employee performance. These findings underscore the importance of effective leadership in enhancing organizational productivity and performance.

Acknowledgment

The author sincerely thanks the employees of Staffield Country Resort, Beranang, Selangor, Malaysia, for their participation and Zaharah Othman, Hazree Yusof, and Visvanathan R. Joe for their support as colleagues and also special thanks to Nur Aleqha, Auni Zafirah, Azli Saadan, and Syazwan Johari for their valuable support.

References

[1] Northouse, P. G. (2010). Leadership, Theory and Practice (5th ed.). Thousand Oaks, CA Sage. - References - Scientific Research Publishing.(n.d.).

[2] Fransen, K., Boen, F., Vansteenkiste, M., Mertens, N., & Broek, G. V. (2017). The power of competence support: The impact of coaches and athlete leaders on intrinsic motivation and performance. Scandinavian Journal of Medicine and Science in Sports, 28(2), 725–745. https://doi.org/10.1111/sms.12950.

[3] Avolio, B. J. (1999). Full leadership development Building the vital forces in organizations. Thousand Oaks, CA Sage. - References - Scientific Research Publishing. (n.d.). https://www.scirp.org/reference/referencespapers?referenceid=975517

[4] Platania, S., Morando, M., Gruttadauria, S. V., & Koopmans, L. (2023). The Individual Work Performance Questionnaire: Psychometric properties of the Italian version. The Work Performance in Industrial. https://doi.org/10.20944/preprints202311.0251.v1

[5] Piwowar-Sulej, K., & Iqbal, Q. (2023, January 1). Leadership styles and sustainable performance: A systematic literature review. Journal of Cleaner Production.

M., Qayyim, & A.R.A., Rasid, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

QUANTIFYING THE IMPACT OF MOBILE GAMING ADDICTION ON THE QUALITY OF LIFE OF MALAYSIAN YOUNG URBAN ADULTS

Muhammad Aidil Ab Ghani, & Azman Ahmad Tajri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: azmantajri@uitm.edu.my

Keywords: Mobile gaming addiction, Young adult wellbeing, Urban demographics, Addiction effects, Behavioral health

I. Introduction

Mobile gaming addiction is increasingly prevalent among young adults, with significant implications for their overall wellbeing. This study investigates the level of mobile gaming addiction in Petaling Jaya, its effects on young adult wellbeing, and the relationship between addiction and wellbeing. The findings aim to offer actionable insights into addressing addiction-related challenges within this demographic.

II. Methods

This non-experimental, quantitative study employed questionnaires to measure mobile gaming addiction and its effects on young adult wellbeing. The sample consisted of young adults aged 18 to 24 years, selected through simple random sampling in Petaling Jaya. Data collection focused on the relationship between gaming addiction levels and wellbeing indicators.

III. Results and Discussion

A. Mobile Gaming Addiction

The study revealed that 69.0% of participants were at severe risk for mobile gaming addiction, with an average addiction level of 3.66 ± 1.12. This highlights a significant prevalence of addiction among young adults in Petaling Jaya.

B. Effects on Young Adult Well Being

Mobile gaming addiction was associated with moderate negative effects on mental health, social relationships, and overall well being, with a mean score of 3.51 ± 0.784. Variations in severity reflected individual differences.

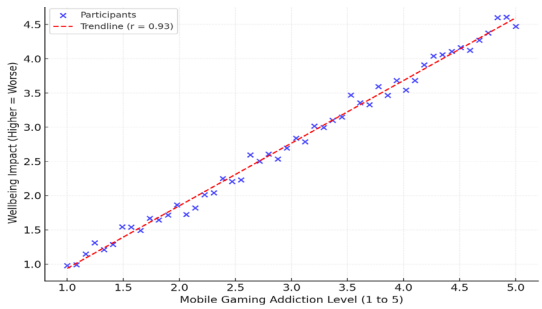


Fig. 1 The relationship between mobile gaming addiction levels and their impacts on wellbeing. The red dashed line represents the trendline, showing a strong positive correlation ($r = 0.93$).

C. Correlation of Mobile Gaming Addiction Effects on Young Adult Well Being

A strong positive correlation ($r = 0.928$, $p<0.001$) was identified between addiction levels and wellbeing impacts. This underscores the detrimental effects of severe addiction, consistent with global findings but uniquely pronounced in this tech-savvy urban sample.

IV. Conclusions

Mobile gaming addiction among young adults in Petaling Jaya is highly prevalent, with severe risks significantly affecting their wellbeing. Findings highlight the need for targeted interventions to address addiction's adverse effects on mental health, social relationships, and quality of life. The strong correlation between addiction and wellbeing impacts underscores the importance of prioritizing awareness and support strategies in urban communities.

Acknowledgment

The authors thank Dr. Radzliyana Radzuwan for their invaluable guidance, Universiti Teknologi MARA (UiTM) Kampus Seremban for resources, and the young adults in Petaling Jaya for their participation. Gratitude is extended to family and friends for their unwavering support throughout this research.

References

[1] Li, H., & Wang, S. (2019). The Association Between Mobile Game Addiction and Depression, Social Anxiety, and Loneliness. Frontiers in Public Health, 7, 247.
[2] Basu, S., Sharma, P., Rustagi, R., Sharma, R., & Sharma, N. (2020). Measuring addiction to internet gaming among Indian medical students: Development and preliminary psychometric properties of a new scale. Industrial Psychiatry Journal, 29(1), 33.
[3] Zakaria, A. S., & Adnan, W. H. (2022). Youth awareness: A survey on mobile gaming addiction concerning physical health performance on young adults in Malaysia. Journal of Media and Information Warfare, 15(1), 85–98.
[4] Thakur, D. (2021). Gaming addiction to massively multiplayer online games (MMOGs) and quality of life. Indian Journal of Forensic Medicine & Toxicology, 15(1), 61.
[5] Xiao, W., Wu, J., Yip, J., Shi, Q., Peng, L., Lei, Q. E., & Ren, Z. (2022). The relationship between physical activity and mobile phone addiction among adolescents and young adults: Systematic review and meta-analysis of observational studies. JMIR Public Health and Surveillance, 8(12), e41606.
[6] Raouf, S. Y. A., Gabr, H. M., Al-Wutayd, O., & Al-Batanony, M. A. (2022). Video game disorder and mental well-being among university

M.A.A., Ghani, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

students: A cross-sectional study. The Pan African Medical Journal, 41.

[7] Phetphum, C., Keeratisiroj, O., & Prajongjeep, A. (2023). The association between mobile game addiction and mental health problems and learning outcomes among Thai youths classified by gender and education levels. Asian Journal of Social Health and Behavior, 6(4), 196–202.

M.A.A., Ghani, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE IMPACT OF JOB SATISFACTION ON EMPLOYEE TURNOVER INTENTION: EVIDENCE FROM MALAYSIAN SPORTS RETAIL OUTLET

Muqrees Rosman, & Mohamad Firdaus Ahmad*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: firdaus466@uitm.edu.my

Keywords: Job satisfaction, Turnover intention, Sports retail employees, Employee retention, Organizational support

I. Introduction

Job satisfaction significantly influences employee retention, yet its impact on turnover intention in sports retail remains underexplored. This study examines job satisfaction levels and turnover intentions among sports retail employees at Mitsui Outlet Park KLIA, addressing gaps in contextual factors, organizational support, and employee fatigue [1]. Findings aim to enhance workforce stability and inform managerial strategies for improving employee retention in high-pressure retail environments [2].

II. Methods

This study employed a quantitative survey design using convenience and simple random sampling. Data were collected through Google Forms and in-person distribution at retail stores. A total of 95 permanent sports retail employees at Mitsui Outlet Park KLIA participated. The survey assessed job satisfaction and turnover intention, providing insights into factors influencing employee retention in a high-pressure retail environment [3].

III. Results and Discussion

A. Job Satisfaction

The descriptive statistics for various aspects of the organization revealed that pay had a mean score of 3.04 with a standard deviation of 0.376. Promotion recorded a mean score of 2.85 with a standard deviation of 0.791. The nature of work showed a mean score of 2.97 with a standard deviation of 0.825, while supervision recorded a mean score of 2.87 with a standard deviation of 0.353. In conclusion, all aspects, namely pay, promotion, nature of work, and supervision, achieved mean scores falling under the *Moderate* category according to [4,5].

TABLE I
Descriptive Statistics for Job Satisfaction

	N	Mean	SD
Pay	95	3.04	0.376
Promotion	95	2.85	0.791
Nature of Work	95	2.97	0.825
Supervision	95	2.87	0.353

B. Turnover Intention

The descriptive statistics for turnover intention showed that the mean score was 2.99 with a standard deviation of 0.464. Referring to the classification by [5], this mean score falls under the "Moderate" category (2.70 to 3.49). This indicates that the sample demonstrates a moderate level of turnover intention, suggesting that employees have a fair tendency to consider leaving their organization [6].

TABLE II
Descriptive Statistics for Turnover Intention

	N	Mean	SD
Turnover intention	95	2.99	0.464

C. Relationship between Job Satisfaction and Turnover Intention

The correlation matrix showed the relationship between job satisfaction and turnover intention. Pearson's correlation coefficient (*r*) between job satisfaction and turnover intention was -0.636, indicating a strong negative correlation [7]. This means that as job satisfaction increased, turnover intention decreased. The degrees of freedom (*df*) for this correlation were 93, and the *p*-value was less than .001, indicating that the correlation was statistically significant. This data provided insights into the inverse relationship between job satisfaction and turnover intention within the organization. There is a significant relationship between job satisfaction and turnover intention and a negative correlation relationship; therefore, the hypothesis is accepted [3].

TABLE III
Correlation between Job Satisfaction and Turnover Intention

	Turnover Intention	
Job Satisfaction	Chi-Square	*-0.636*
	df	*93*
	p-value	*<0.001*

M., Rosman, & M.F., Ahmad, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

This study highlights the moderate job satisfaction and turnover intention levels among sports retail employees at Mitsui Outlet Park KLIA. Pay was the strongest satisfaction factor, while promotion opportunities showed variability. The significant negative correlation between job satisfaction and turnover intention underscores the need for improved career growth opportunities to enhance retention and reduce employee turnover [2].

Acknowledgment

The authors express gratitude to the sports retail respondents in Mitsui Outlet Park, UiTM Cawangan Negeri Sembilan Kampus Seremban 3, and Dr. Firdaus for their invaluable support and contributions to this research.

References

[1] U.S. Bureau of Labor Statistics. (2021). *Employee fatigue and its impact on turnover in the retail sector*.

[2] McKinsey & Company. (2024). *How retailers can build and retain a strong frontline workforce in 2024*. Retrieved from https://www.mckinsey.com/industries/retail/our-insights/how-retailers-can-build-and-retain-a-strong-frontline-workforce-in-2024

[3] Dewi, R. S., & Nurhayati, N. (2021). The effect of job satisfaction on employee turnover intention: A study in Indonesia. *Journal of Business and Management Research, 10*(2), 45-58.

[4] Sija, S. (2021). Job satisfaction and turnover intention among employees in Malaysia: A sectoral comparison. *Asian Journal of Business and Management, 5*(1), 33-48.

[5] Bahagian Perancangan dan Penyelidikan Dasar Pendidikan (BPPDP). (2006). *Panduan kajian kepuasan pelanggan*. Kementerian Pelajaran Malaysia.

[6] DailyPay. (2024). *Retail employee turnover trends and solutions*. Retrieved from https://www.dailypay.com/resource-center/blog/employee-turnover-rates-in-retail/

[7] Maroudas, L., Kyriakidou, O., & Vacharis, A. (2008). Employees' motivation in the luxury hotel industry: The perceived effectiveness of human-resource practices. *Managing Leisure, 13*(3–4), 258–271.

RELATIONSHIP BETWEEN JOB SATISFACTION AND JOB PERFORMANCE AT AL-IKHSAN SPORTS IOI CITY MALL PUTRAJAYA

Mohammad Amirul Hakeem, & Mohammad Adzly Rajli*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: adzly6672@uitm.edu.my

Keywords: Job satisfaction, Job performance, Self-Determination Theory, Retail employees

I. Introduction

Job satisfaction and job performance are crucial for organizational success [1]. This study investigates major job satisfaction factors, evaluates job performance levels, and examines their relationship among employees at Al-Ikhsan Sports IOI City Mall, Putrajaya. Understanding this connection can help enhance employee motivation, productivity, and overall workplace efficiency [2]. Findings will provide insights for management to improve job satisfaction and performance.

II. Methods

This quantitative, non-experimental study used a survey method to collect data from all employees at Al-Ikhsan Sports IOI City Mall (n = 35, s = 32, with a 20% buffer for non-responses). A structured questionnaire measured job satisfaction across key domains and job performance metrics. Descriptive and inferential statistics, including correlation and regression analysis, were employed to examine the relationship between job satisfaction and performance [3].

III. Results and Discussion

A. Major Job Satisfaction Factors

Employees identified pay, promotion, nature of work, and supervision as key job satisfaction factors, with pay scoring highest (3.46). Surprisingly, promotion received a low mean score (2.91), highlighting dissatisfaction with career advancement. Supervision (2.94) also showed moderate satisfaction, indicating managerial improvements are needed.

B. Level of Job Performance

Job performance was moderate overall, with strengths in task prioritization (3.72) but weaknesses in creativity (3.03) and communication (2.78). Employees excelled in time management but struggled with open dialogue, suggesting a lack of psychological safety.

C. Relationship Between Job Satisfaction and Job Performance

No significant correlation was found between job satisfaction and job performance, contradicting existing research (Table 1). However, pay had the highest (though non-significant) influence (β = 0.192). Management should ensure competitive pay, improve promotion transparency, enhance leadership training, and foster better communication to boost overall performance.

TABLE I
Correlation Between Job Satisfaction and Job Performance

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.715	.754		3.600	.001
	IV_PAY	.101	.098	.192	1.028	.313
	IV_PRO	.044	.110	.075	.397	.695
	IV_N	-.062	.113	-.104	-.545	.590
	IV_SU	.069	.120	.110	.579	.567

D. General Discussion

In summary, the multiple regression analysis shows no statistical significant relationship between any of the independent variables Pay, Promotion, Nature of Work, or Supervision and dependent variable Job Performance. Such findings bring out the idea that when using available data, the selected independent variables may not determine variations in job Performance among respondents.

This might result in the existence of other factors beyond those studied here that influence Job Performance more than those in this study. Thus, future studies should consider the implementation of other variables to enable further research and maybe provide more explanations of the determinants of Job Performance in this environment.

IV. Conclusions

The multiple regression analysis found no statistically significant relationship between job satisfaction factors (Pay, Promotion, Nature of Work, and Supervision) and Job Performance. This suggests that other unexamined factors may play a more significant role.

Acknowledgment

I would like to express my heartfelt gratitude to my family for their unwavering support and my colleagues Mia and Syazwan for their encouragement and assistance throughout this research.

References

[1] Yildiz, S. M. (2021). The Relationship between Job Satisfaction and Job Performance. Journal of Educational Issues, 7(2), 1-15.
[2] Ipşirli, M., & Namal, M. K. (2023). Main Factors That Influence Job Satisfaction. Journal of Management and Economics Research, 21(1), 205-223.

M.A., Hakeem, & M.A., Rajli, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

[3] Judge, T. A., & Bono, J. E. (2024). The Relationship Between Job Satisfaction and Job Performance: A Meta-analysis. Journal of Applied Psychology, 109(1), 1-20.

SOCIAL DYNAMICS AND LONELINESS IN ESPORTS: REFRAMING THE RELATIONSHIP IN COMPETITIVE GAMING

Raja Al-Imran Hakim Raja Nor Azlan, Adam Linoby, Yusandra Md Yusoff, Amrun Haziq, Muhammad Zulqarnain, & Razif Sazali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: razifsazali@uitm.edu.my

Keywords: Loneliness, E-sports, Participation factors, EA Sports FC Mobile, Gaming Motivation

I. Introduction

Loneliness is an internal discomfort caused by insufficient interpersonal interactions [1] that significantly impacts mental health and quality of life [2]. Despite eSports' growing popularity, limited research explores the psychological factors influencing participation, particularly loneliness [3]. This study examines the relationship between loneliness and participation factors in EA Sports FC™ Mobile, addressing knowledge gaps on player psychology and motivation.

II. Methods

80 EA Sports FC Mobile users participated in the GGKL v3 on 9th-10th November 2024 and MVP Series on 21 December 2024 events were the study's target respondents. A questionnaire that included demographic information, a 20-item measure of off-esport loneliness using UCLA Loneliness Scale (Russell et al., 1978) [4] and 27 participation motives using C-MOGQ (Wu et al., 2016) [5] was used to gather data. Loneliness level was measured by the mean of the total score. For a 20-34 score, it means the level of loneliness is low, while 35-49, it will be a moderate level and 50-80 is a high level of loneliness. Spearman Correlation was used to examine the connection between loneliness and factor of involvement as the normality test highlighted the results as non-normal.

III. Results and Discussion

A. Loneliness

According to the study, participants' levels of loneliness were moderate (37.2 ± 15.9). This implies that the social atmosphere of e-sport competitions could reduce feelings of isolation while offering significant details on how gaming communities may encourage interpersonal connection.

B. Factor of Participation

The main factors that influence participation were found to be Recreation (4.74 ± 0.65) and Escape (4.57 ± 0.51), which highlights the significance of recreation and stress reduction in motivating participants. This underlines how playing eSports has psychological benefits.

C. The Relationship between Loneliness and Factor of Participation

Spearman Correlation analysis revealed no significant relationship between loneliness and participation factors. This highlights a variety of psychological factors that influence e-sport involvement by showing that motivations like escape and recreation are unrelated to feelings of loneliness. Table 1 highlights the results of the findings.

TABLE I
The Relationship between Loneliness and Factor of Participation

		Loneliness
Factor of Participation	Spearman's rho	*-0.148*
	df	*78*
	Sig (2-tailed)	*0.095*

IV. Conclusion

Based on this study, EA SPORTS FC™ Mobile players show a low level of loneliness, with escape and recreation standing as major motivators. The fact that loneliness and involvement characteristics do not significantly correlate highlights the variety of psychological motivations that exist in e-sports. These results offer helpful data for future research and recommendations for intervention focused on e-sport communities.

Acknowledgment

The author expresses heartfelt gratitude to Danial 'Immran, Muhammad Syazwan, Muhammad Nur Amin and to GGKL v3 and MVP Series tournaments for supporting data collection.

References

[1] Heinrich, L. M., & Gullone, E. (2006). The clinical significance of loneliness: A literature review. Clinical Psychology Review, 26(6), 695–718. https://doi.org/10.1016/j. cpr.2006.04.002.
[2] Hussein S, Ismail A, Abu Bakar S. Loneliness and Health Outcomes Among Malaysian Older Adults. Makara J Health Res. 2021;25. https://doi.org/10.7454/msk.v25i2.1277.
[3] Pedraza-Ramirez, I., Musculus, L., Raab, M., & Laborde, S. (2020). Setting the scientific stage for esports psychology: A systematic review. International Review of Sport and Exercise Psychology, 13(1), 319–352. https://doi.org/10.1080/1750984X.2020.1723122.
[4] Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a Measure of Loneliness. Journal of Personality Assessment, 42(3), 290–294. https://doi.org/10.1207/s15327752jpa4203_11

[5] Wu, A. M. S., Lai, M. H. C., Yu, S., Lau, J. T. F., & Lei, M. (2016). Motives for online gaming questionnaire: Its psychometric properties and correlation with Internet gaming disorder symptoms among Chinese people. Journal of Behavioral Addictions, 6 (1), 11–20. https://doi.org/10.1556/2006.6.2017.007

UNDERSTANDING THE ROLE OF GENDER, COPING APPROACHES, AND STRESS MANAGEMENT IN A MALAYSIAN FOOTBALL ORGANIZATION

Nur Diana Andi Azis, & Ummi Kalthum Mohd Mokhtar*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: ummikalthum@uitm.edu.my

Keywords: Work stress, Coping strategies,Gender differences, Employee well-being, Pearson correlation

I. Introduction

Work-related stress is a significant concern affecting employees' well-being and organisational efficiency [1]. This study examines work stress levels and coping strategies among employees in Persatuan Bola Sepak Negeri Sembilan (PBNS). By assessing the relationship between stress and coping mechanisms, this research provides insights into mitigating workplace stress and fostering a supportive work environment. Findings aim to inform targeted interventions that enhance employee resilience and organisational productivity [2].

II. Methods

This study employed a non-experimental quantitative design using survey questionnaires. Forty-five employees from PBNS were surveyed, with data analyzed using descriptive and correlational techniques via Jamovi. Work stress was measured using the Work Stressor Questionnaire (α = 0.86), and coping strategies were assessed with the Brief-COPE scale (α = 0.81). The entire PBNS population was sampled for comprehensive insights.

III. Results and Discussion

A. Work Stress Level

The analysis revealed that most employees (78.4%) at PBNS experienced moderate stress levels, while 19.6% reported high stress, and only 2.0% fell into the low-stress category. This distribution suggests that stress is prevalent but predominantly at moderate levels, necessitating tailored interventions to prevent escalation.

B. Coping Strategies Level

Employees demonstrated a balanced distribution in coping strategies, with 45.1% at both moderate and high levels, and 9.8% at low levels. These results indicate that most employees actively employ coping mechanisms, though a notable minority may need additional support to enhance coping skills.

C. Relationship between Work Stress and Coping Strategies

A moderate positive correlation (r = 0.426, p<0.002) was found between stress and coping strategies, indicating employees experiencing higher stress are more likely to adopt coping mechanisms.

D. Gender Differences in Work Stress

Female employees reported significantly higher stress levels (194 ± 27.6) than their male counterparts (169 ± 25.5), with a substantial effect size (d = 0.933, p = 0.011). This finding suggests gender-based variations in stress experiences, emphasizing the need for gender-sensitive approaches to stress management in the workplace.

TABLE I
Descriptive of Differences in Work Stress in Terms of Gender

	Group	N	Mean	SD	*p*
Work Stress Total	Male	41	169	25.5	0.011
	Female	10	194	27.6	

IV. Conclusions

This study revealed that most PBNS employees experience moderate stress, with significant gender differences and a positive correlation between stress and coping strategies. Effective coping strategies, including problem-focused and emotion-focused approaches, are vital for mitigating stress impacts. These findings underscore the importance of targeted interventions to enhance employee resilience and workplace well-being.

Acknowledgment

We sincerely thank the employees of Persatuan Bola Sepak Negeri Sembilan for their participation and cooperation, as well as colleagues for their valuable support.

References

[1] Clark, R., & Robinson, D. (2021). *Job satisfaction and stress: Examining the link between stress levels and employee turnover*. Human Resource Development Quarterly, 32(2), 78–94.

[2] Turner, N., & Adams, F. (2023). *Building resilience in the workplace: A framework for stress reduction and employee well-being*. Journal of Applied Psychology, 48(1), 98–112.

N.D.A., Azis, & U.K.M., Mokhtar, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXAMINING THE EFFECTS OF SOCIAL MEDIA'S IMPACT ON JOB PERFORMANCE: A MALAYSIAN ORGANIZATIONAL CULTURE STUDY

Nur Aleqha Qayyum, & Aida Roha Abdul Rasid*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: aidaroha@uitm.edu.my

Keywords: Social media, Organizational culture, Job performance, Gender differences, Employees relation

I. Introduction

The rapid growth of internet technology has driven global social media adoption, with 4.62 billion users in 2022 [1]. Research highlights social media's positive effects on job performance by fostering socialization and enhancing employee communication. This study examines social media usage, its relationship to job performance, and associated gender differences among employees at Astro Malaysia [2]. This study explores the relationship between social media usage and job performance focusing on Malaysian culture.

II. Methods

This study employed a quantitative, non-experimental survey method, involving 229 respondents selected through convenience sampling for accessibility and willingness to participate. Social media usage was adopted and adapted from (Hair et al. 2010) consisting of 4 domains with 26 items. However, job performance based on 'Factors that Influences Job Performance among Employees in Oil Palm Plantation' from [3] has 4 domains and 26 items. This questionnaire was based on the Likert Scale from 1–5 (Strongly Disagree – Strongly Agree).

III. Results and Discussion

A. Social Media Usage Among Employees at ASTRO

Results showed that the mean score for domain in social media usage were knowledge sharing (3.10 ± 0.62), decision making (3.05 ± 0.54), communication (3.04 ± 0.60) followed by network ties (3.01 ± 0.60). This highlights a balance needed between encouraging knowledge sharing and minimizing distraction.

B. Job Performance Among Employees at ASTRO

Results showed that the mean score for domain in job performance were stress (3.07, ± 0.50), workload (3.06, ± 0.50), working environment (2.97, ± 0.70) followed by salary (2.89, ± 0.50). Although no significant trends were found, stress impacts organizational outcomes by shaping employee productivity and satisfaction.

C. Differences of social media usage among employees at ASTRO

The results of the Independent T-Test comparing job performance between male (n = 109; 3.04, ± 0.36) and female (n = 119, 3.06, ± 0.32) respondents should know that there is no significant difference with p-value 0.67.

D. Relationship between social media usage and job performance among employees at ASTRO Malaysia

There was a significant relationship between social media usage and job performance, r = 0.13, n = 227, p<0.05. if suggest that social media usage had very little effect on the strength of relationship between these two variables.

IV. Conclusions

This study revealed that social media usage influences job performance through knowledge sharing, stress, and minimal gender differences. A positive correlation highlights opportunities for productivity improvement via balanced usage. Effective workplace policies must address stressors and manage social media use to optimize employee engagement and organizational outcomes.

Acknowledgment

The authors thank the employees at Astro Arena, Bukit Jalil, Malaysia, for their participation, and special thanks to Qayyim Fakhriy, Auni Zafirah, Azli Saadan, and Syazwan Johari for their valuable support.

References

[1] Kemp, S. (2022). Digital 2022: Global Overview Report. Data Reportal. Retrieved from https://datareportal.com/reports/digital-2022-global-overview-report
[2] Nisar, T. M., Prabhakar, G., Ilavarasan, P. V., & Baabdullah, A. M. (2019). Social media usage and employee's job performance: The moderating role of social media rules. Journal of Enterprise Information Management, 32(6), 1013-1031.
[3] Munisamy, S. (2013). Identifying factors that influence job performance amongst employees in oil palm plantation. A Project Paper submitted in partial fulfillment of the requirements for the requirements for the degree of Bachelor in Psychology, 79.

N.A., Qayyum, & A.R.A., Rasid, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

PHYSICAL ACTIVITY AND LIFE SATISFACTION: A STUDY IN MALAYSIAN URBAN SETTING

Ahmad Hafizuddin Ahmad Shukri, & Azman Ahmad Tajri*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: azmantajri@uitm.edu.my

Keywords: Physical activity, Life satisfaction, Well-being, Urban population, Demographics

I. Introduction

This study investigates the relationship between physical activity and life satisfaction among Georgetown citizens [1]. By analyzing activity levels and satisfaction metrics, the research identifies demographic factors influencing well-being. Insights aim to inform interventions promoting exercise and enhancing happiness in urban settings, contributing to public health and policy development [2,3].

II. Methods

This study employed the International Physical Activity Questionnaire (IPAQ) and the Purpose in Life (PIL) test to measure physical activity and life satisfaction, respectively. Non-probability sampling targeted Georgetown citizens aged 20–60 years. Descriptive statistics summarized activity and satisfaction levels, while inferential tests, including correlation and t-tests, analyzed their relationship and gender differences.

III. Results and Discussion

A. Physical Activity Level

This study examines the level of physical activity among citizens in Georgetown using the International Physical Activity Questionnaire (IPAQ). Data from 465 respondents show that 56.25% engage in high activity levels, 41.16% in moderate activity, and 2.58% in low activity. Walking is the most common form of exercise, while intense workouts are less frequent. These findings highlight the need for targeted interventions to promote sustained physical activity.

B. Life Satisfaction Levels

Life satisfaction was high, with an average score of 6/7. Purpose and optimism were most positively rated. Gender differences were significant, with males reporting higher satisfaction, while educational attainment showed a positive correlation with well-being.

C. Relationship Between Physical Activity and Life Satisfaction

TABLE I
The Relationship between Physical Activity and Life Satisfaction

		IPAQ
Life Satisfaction	*r*	*0.9*
	Sig (2-tailed)	*0.026*
	n	*464*

This study investigates the relationship between physical activity and life satisfaction among citizens in Georgetown. Data analysis reveals a strong positive correlation ($r = 0.90$, $p = 0.026$) between the two variables, indicating that individuals who engage in regular physical activity report higher life satisfaction (Table 1). Exercise contributes to improved mood, reduced stress, and better social interactions. These findings highlight the importance of promoting active lifestyles to enhance overall well-being.

IV. Conclusions

This study demonstrates a significant positive relationship between physical activity and life satisfaction among Georgetown citizens. Moderate engagement in physical activities, particularly walking, enhances well-being, with demographic factors such as gender and income influencing this link. These findings support tailored interventions to promote regular exercise, fostering greater life satisfaction and improved public health outcomes..

Acknowledgment

The author expresses gratitude to all respondents for their invaluable contributions to this study.

References

[1] Marina Wöbbeking Sánchez, Antonio Sánchez Cabaco, Beatriz Bonete-López,. (2021). Physical Activity and life satisfaction: An Empirical study in a population of senior citizens. *Forints in physiology*.

[2] Myeong-Hun Bae. (2023). The Effect of Exercise on School Life Satisfaction in Korean Children and Adolescents Considering the Mediation Effects of Physical Health Awareness, Self-Esteem, and Depression. *Iran J Public Health*.

[3] Sinan Y., Gulhazal O. (2023). The Relationship Between Physical Activity and Life Satisfaction: The Mediating Role of Social-Physique Anxiety and Self-Esteem. *Pamukkale Journal of Sport Science*.

A.H.A., Shukri, & A.A., Tajri, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXPLORING THE RELATIONSHIP BETWEEN LEADERSHIP STYLES AND HRM PRACTICES IN ORGANIZATIONAL PERFORMANCE

Sherin Nadhirah Sharudin, & Mohamad Firdaus Ahmad*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: firdaus466@uitm.edu.my

Keywords: Leadership Styles, Human Resource Management, Transformational Leadership, Organizational Performance, Employee Perception

I. Introduction

Leadership styles significantly influence employee perceptions of Human Resource Management (HRM) practices, especially in uncertain times. This study examines the preferred leadership styles, perceived HRM practices, and their interrelationship among Putrajaya Corporation employees. Addressing gaps in leadership's impact during crises [1], the findings aim to guide effective organizational strategies.

II. Methods

A quantitative research approach was employed to explore the relationship between leadership styles and HRM practices at Putrajaya Corporation. Data were collected through surveys from a large participant sample, enabling efficient and comprehensive insights. Statistical analyses, including correlation analysis, reliability analysis, and descriptive statistics, were conducted to identify patterns and relationships.

III. Results and Discussion

A. Leadership styles

Transformational leadership emerged as the most preferred style, emphasizing inspiration and intellectual stimulation [2]. Technical roles showed a preference for transactional leadership, highlighting a role-based divergence.

B. Human Resource Management Practices

HRM practices were rated moderately effective (mean = 3.6), with training and development rated strongest (mean = 4.2). Recruitment processes showed room for improvement (mean = 3.1).

C. Relationship Between Leadership Styles And Human Resource Management Practices

A strong positive correlation ($r = 0.68$, $p<0.01$) was found between transformational leadership and HRM practices, particularly in training and retention. Transactional leadership showed a weaker correlation ($r = 0.45$, $p<0.05$).

Fig. 1 Scatterplot shows the correlation between Leadership Styles and Human Resource Management Practices

IV. Conclusions

Transformational leadership significantly enhances HRM practices [3], especially in training and retention, making it the preferred style among Putrajaya Corporation employees. However, recruitment processes require further improvement. These insights highlight the strategic importance of leadership in optimizing HRM outcomes and guiding organizational growth.

Acknowledgment

The authors extend their gratitude to the employees of Putrajaya Corporation for their participation and valuable contributions to this study.

References

[1] Vogel, B., Reichard, R. J., Batistič, S., & Černe, M. (2021). A model of inspirational leadership in times of crisis: Lessons from the COVID-19 pandemic. Group & Organization Management, 46(2), 329-361.

[2] Jamali, A., Bhutto, A., Khaskhely, M., & Sethar, W. (2022). Impact of leadership styles on faculty performance: Moderating role of organizational culture in higher education. Management Science Letters, 12(1), 1-20.

[3] Al-Jubouri, Z. T. K. (2023). The Role of Transformational Leadership for Human Resource Managers in Training and Development. International Journal of Professional Business Review, 8(4), e01376.

S.N., Sharudin, & M.F., Ahmad, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND MENTAL HEALTH STATUS AMONG EMPLOYEES AT SEMENYIH ECO-VENTURE RESORT AND RECREATION

Nur Azura Mahmud, & Mohammad Adzly Rajli*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: adzly6672@uitm.edu.my

Keywords: Physical activity, Mental health, Employee wellness, Workplace productivity, Malaysia

I. Introduction

The relationship between physical activity and mental health status has been widely studied, but research focusing on employees in Malaysia remains limited. This study investigates the level of physical activity and mental health status among employees at Semenyih Eco Venture Resort and Recreation. By examining their association, the findings will contribute to workplace wellness strategies and address gaps in local research.

II. Methods

This study employed a quantitative, non-experimental design using a purposive sampling approach. A structured questionnaire was administered to 33 employees at Semenyih Eco Venture Resort and Recreation. The International Physical Activity Questionnaire (IPAQ-short form) assessed physical activity levels [1], while the Depression Anxiety and Stress Scale (DASS-21) measured mental health status [2]. Descriptive and inferential statistics were used to analyze physical activity levels, METs/week, and mental health outcomes.

III. Results and Discussion

A. Level of Physical Activity

Employees at Semenyih Eco Venture Resort engaged most frequently in walking for at least 10 minutes daily (6.06 ± 1.41), with moderate activities (4.88 ± 1.78) and vigorous activities (4.42 ± 1.62) occurring less often. Sitting time had the lowest frequency (3.48 ± 1.58), reflecting active daily routines.

B. Mental Health Status

Anxiety was the most prevalent mental health issue (2 ± 1.32), followed by depression (1.48 ± 0.87) and stress (1.36 ± 0.96). These findings align with existing research highlighting anxiety as a dominant concern.

C. Association Between Physical Activity and Mental Health Status

The Fisher Exact test revealed no significant association (p = 1.00) between physical activity and mental health status [3]. Despite this, physical activity remains crucial for employee productivity and well-being, supporting initiatives like fitness programs to enhance both physical and mental health outcomes.

IV. Conclusions

Physical activity levels among employees at Semenyih Eco Venture reflect active engagement, with walking being most frequent. Mental health challenges, particularly anxiety, emphasize the need for targeted interventions. While no significant association between physical activity and mental health was observed, promoting wellness programs remains vital for improving employee well-being and organizational performance.

Acknowledgment

The author sincerely thanks Semenyih Eco Venture Resort and Recreation for their support, and all participants for supporting this study.

References

[1] Kosendiak, A. A., Wysocki, M., Krysinski, P., Kuznik, Z., & Adamczak, B. (2023). Impact of the COVID-19 pandemic on physical activity, smoking, alcohol use, and mental well-being – A longitudinal study of nursing students at Wroclaw Medical University in Poland. Front. Public Health, 11:1249509. doi: 10.3389/fpubh.2023.1249509

[2] Nahid Hasan, A. B. M., Sharif, A., & Jahan, I. (2023). Perceived barriers to maintain physical activity and its association to mental health status of Bangladeshi adults: a quantile regression approach. https://doi.org/10.1038/s41598-023-36299-7

[3] Saemi, E., Nobari, H., Badicu, G., Ghazizadeh, H., Pashabadi, A., Imani, F., Clemente, F. M., Silva, A. F., & Afrash, S. (2022). The impact of COVID-19 pandemic restrictions on physical activity and mental health status of Iranian people. BMC Sports Science, Medicine and Rehabilitation. https://doi.org/10.1186/s13102-022-00584-1.

N.A., Mahmud, & M.A., Rajli, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXAMINING THE RELATIONSHIP BETWEEN LEADERSHIP STYLES AND JOB SATISFACTION IN MALAYSIAN SPORT STUDIES FACULTY

Muhammad Imran Hakim Hazainolkimi, & Radzliyana Radzwan*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: radzliyana@uitm.edu.my

Keywords: Leadership Styles, Job Satisfaction, Sport Studies, Lecturer, Malaysia

I. Introduction

This study examines the relationship between leadership styles and job satisfaction among the FSR lecturers at UiTM Malaysia. Job satisfaction enhances employee performance, creativity, and retention, while ineffective leadership can lead to dissatisfaction [1]. Leadership, as a key managerial function, influences workplace experiences through its styles and practices [2]. Existing research shows a strong correlation between leadership style and job satisfaction [3], yet the development of an optimal leadership approach remains insufficiently explored. This study aims to address that gap.

II. Methods

A total of 125 FSR Lecturer UiTM Malaysia were selected using simple random and probability sampling techniques. Leadership styles were assessed via the Leadership Style Questionnaire using a 5-point Likert scale, while job satisfaction was measured using the Behnam et al with a 5-point Likert scale.

III. Results and Discussion

A. Leadership Styles

The result provides insights into leadership styles based on a sample of 94 observations. The mean leadership styles score is 3.09, indicating a moderate level on the scale used. The standard deviation (SD) of 0.392 suggests relatively low variability among responses, meaning most leadership styles ratings are close to the mean. This implies consistency in leadership styles within the studied population.

B. Job Satisfaction

The descriptive statistics table provides an overview of job satisfaction levels among 94 participants. The mean job satisfaction score is 3.04, indicating a moderate level of satisfaction. The standard deviation (SD) of 0.416 suggests a relatively low variability in responses, meaning that most participants' job satisfaction ratings are close to the average. This implies a generally consistent perception of job satisfaction within the sample group.

C. Relationship between Leadership Styles and Job Satisfaction

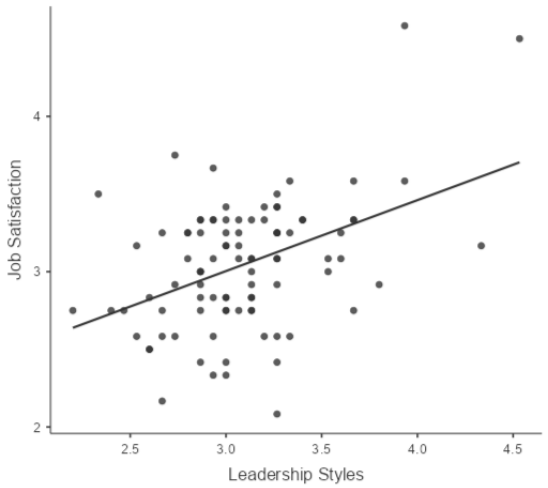


Fig. 1 Scatterplot shows the correlation between Leadership Styles and Job Satisfaction

IV. Conclusions

This study highlights a positive correlation between leadership styles and job satisfaction, indicating that better leadership practices are generally associated with higher job satisfaction. However, the dispersed data points suggest variability, meaning other factors may also influence job satisfaction. While leadership style appears to be a contributing factor, its impact may not be uniform across all individuals.

Acknowledgment

The author would like to express their gratitude to the FSR lecturers UiTM Malaysia for their contributions.

References

[1] Leadership styles, job satisfaction and organizational commitment among academic staff in public universities. (n.d.). ResearchGate.
[2] The Impact of Leadership Styles on Employee's Job Satisfaction. (n.d.). ResearchGate
[3] Employee Commitment: The Relationship between Employee Commitment And Job Satisfaction. (n.d.). ResearchGate.

M.I.H., Hazainolkimi, & R., Radzuwan, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE RELATIONSHIP BETWEEN CUSTOMER SATISFACTION AND CUSTOMER RETENTION AT SPORTS DIRECT SEREMBAN

Mohamad Mukri Nabil Azmi, Adam Linoby, Yusandra Md Yusoff, Amrun Haziq, Muhammad Zulqarnain, & Razif Sazali*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: razifsazali@uitm.edu.my

Keywords: Customer satisfaction, Customer retention, Brand loyalty, Brand image, Retail industry

I. Introduction

Customer retention is essential for sustained success, particularly in competitive marketplaces. This study examines the correlation between customer satisfaction and client retention at Sports Direct Seremban, emphasising pricing, product services, and critical aspects affecting retention. This research is designed to clarify consumer loyalty processes to offer practical insights for improving customer happiness and promoting retention in the evolving sports retail sector.

II. Methods

A structured questionnaire adapted from previous study, was used to collect data from 118 customers of Sports Direct Seremban [7]. The questionnaire included demographic details and sections evaluating price, product services, and customer retention using a 5-point Likert scale. Data were analyzed with SPSS version 27 to determine key correlations and insights, ensuring reliability and relevance to the study objectives.

III. Results and Discussion

A. Level of Customer Satisfaction and Price of Product.

TABLE I
Level of Customer Satisfaction with the Price of the Product

Variable	Mean	SD	Level
Price	4.43	0.664	Moderate

Table 1 reported shows that customer satisfaction toward pricing is at moderate level with a mean score of 4.43. This suggests that pricing is perceived as fair and value-aligned. Literature indicates that moderate response variability indicates general agreement on satisfaction levels [5]. Consumers who believe that reasonable prices are more likely to develop favourable opinions of the brand which encourages recurring business and sustained involvement [7]. These findings emphasize the importance of maintaining competitive value-driven pricing strategies to sustain customer satisfaction.

B. Level of Product Services on Customer Satisfaction

TABLE II
Level of Product Services on Customer Satisfaction

Variable	Mean	SD	Level
Product	4.43	0.628	Moderate
Quality of Services	4.41	0.666	Moderate
Physical Environment	4.45	0.657	Moderate

Based on Table II, overall customer satisfaction with product services is also on a moderate level particularly for the physical environment with the score of 4.45 ± 0.657. This highlights that customer satisfaction with product quality and service professionalism are related closely [9]. In shore, these findings highlight the need for continued investment in store ambiance, product variety, and service excellence to enhance overall customer experience and meet expectations effectively.

C. Main Factor on Customer Retention that Influences Customer Satisfaction

TABLE II
Main Factor on Customer Retention that Influences Customer Satisfaction

Variable	Mean	SD
Brand Loyalty	4.44	0.680
Brand Image	4.45	0.647

Table III illustrated that brand loyalty (mean 4.44) and brand image (mean 4.45) were identified as key retention factors. Moderate loyalty and favorable brand perception significantly influenced satisfaction [5]. Consistent positive perceptions suggest opportunities to enhance loyalty programs and maintain a reputable brand image to drive long-term retention [3].

D. Relationship Between Customer Satisfaction and Retention

A multivariate analysis of variance (MANOVA) showed statistically significant relationships between customer satisfaction factors and retention. Price significantly influenced brand loyalty (p = 0.017, F = 3.18) and brand image (p = 0.001, F = 9.949), as that price fairness enhances emotional bonds between customers and brand leading to increased repeat purchases [8]. Physical environment also

strongly affected loyalty (p = 0.001, F = 34.7) and image. the. Physical setting influences not just instant gratification but also creates a feeling of exclusivity and high-end experience, which strengthens brand perception and loyalty [6]. While product and service quality influenced loyalty (p = 0.044, F = 2.82; p = 0.043), their impact on brand image was weaker (p = 0.082; p = 0.058). Superior product attributes, including durability and functionality significantly influence loyalty in diverse consumer markets [2]. These findings highlight pricing and store ambiance as key retention drivers.

IV. Conclusions

Customer satisfaction significantly influences retention, with pricing and store ambiance identified as critical drivers at Sports Direct Seremban. Findings emphasize the importance of fair pricing, quality service, and an appealing physical environment in fostering loyalty and positive brand perception. Strategic improvements in these areas can enhance customer retention and sustain competitive advantage in the retail industry

Acknowledgment

The author gratefully acknowledges Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, for its support and Mr. Razif bin Sazali for his invaluable supervision and guidance.

References

[1] Chen, C. M., & Liu, H. M. (2019). The moderating effect of competitive status on the relationship between customer satisfaction and retention. *Total Quality Management & Business Excellence*, 30(7-8), 721-744.

[2] Hsu, C. L., Chen, Y. C., Yang, T. N., Lin, W. K., & Liu, Y. H. (2018). Does product design matter? Exploring its influences in consumers' psychological responses and brand loyalty. Information Technology & People, 31(3), 886-907.

[3] Hwang, E., Baloglu, S., & Tanford, S. (2019). Building loyalty through reward programs: The influence of perceptions of fairness and brand attachment. *International Journal of Hospitality Management*, 76, 19-28.

[4] Islam, S., Zahin, M., & Rahim, S. B. (2024). Investigating how consumer-perceived value and store image influence brand loyalty in emerging markets. *South Asian Journal of Business Studies*, 13(4), 505-526.

[5] Kartikasari, A., & Albari, A. (2019). The influence of product quality, service quality and price on customer satisfaction and loyalty. Asian *Journal of Entrepreneurship and Family Business*, 3(1), 49-64.

[6] Marques, M. (2024). From Physical to Virtual: The Impact of V-Commerce Experience on Luxury Brands (Master's thesis, Universidade NOVA de Lisboa (Portugal)).

[7] Raduzzi, A., & Massey, J. E. (2019). Customer satisfaction and brand loyalty at McDonalds Maroc. *African Journal of Marketing Management*, 11(3), 21-34.

[8] Yaqub, R. M. S., Halim, F., & Shehzad, A. (2019). Effect of service quality, price fairness, justice with service recovery and relational bonds on customer loyalty: Mediating role of customer satisfaction. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 13(1), 62-94.

[9] Zhao, X., Liu, Z., & Zhang, X. (2021). The mediating effect of perceived price fairness on customer satisfaction and purchase intentions in retail. *Frontiers in Psychology.*

BARRIERS TO LEISURE-TIME PHYSICAL ACTIVITY PARTICIPATION AMONG YOUTH

Nur Adilah Natasya Zawawi, & Rozita Abdul Latif*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: rozita.abdlatif@uitm.edu.my

Keywords: Leisure-time physical activity, Youth barriers, Gender differences, Statistical analysis, Health promotion

I. Introduction

Physical activity participation among youth is a growing concern, leading to severe health and economic consequences [1]. Despite global recommendations, many fail to meet the required activity levels due to various barriers. This study identifies key obstacles to youth participation in leisure-time physical activity, examines gender differences, and explores their impact on activity levels [2]. Understanding these barriers is crucial for developing targeted interventions to promote a healthier and more active lifestyle [3].

II. Methods

A survey was conducted with 3138 respondents (172 males, 141 females). Data were analyzed using Jamovi software, employing Chi-Square tests to assess associations between barriers and leisure-time physical activity [4]. A purposive sampling used for individuals that age range 18 and above who attend the interview at FSR Seremban Campus.

Results and Discussion

A. To identify the main barriers faced by youth

The study identified personal barriers (2.92 ± 0.47) as the primary barrier preventing youth from engaging in leisure-time physical activity. These barriers significantly influenced participation, limiting opportunities for an active lifestyle.

B. To identify the level of leisure-time physical activity participation among youth

Among the 313 respondents (n = 237, 75.7%) the recommended activity level, with most reporting high activity levels. This suggests that, despite barriers, many youth still engage in physical activity.

C. To investigate the barriers to leisure-time physical activity participation among youth in terms of gender

This study examines gender differences in barriers to leisure-time physical activity (LTPA) among 313 participants (172 males, 141 females) using an Independent-Samples t-Test. The analysis focused on three domains: personal barriers, social influence, and environmental factors. The results indicate no statistically significant differences between males and females across all barrier domains. Males reported slightly lower personal barriers (M = 3.01) compared to males (M = 2.85), but the difference was not significant (t = -2.90, p>0.05). Similarly, males experienced marginally higher social influence barriers (M = 2.22) than females (M = 2.17), yet this difference was also non-significant (t = 0.61, p>0.05). Environmental factors showed minimal gender variation (t = 0.31, p>0.05). Since all p-values exceeded 0.05, the findings suggest that both genders face similar challenges to LTPA. These results highlight the need for inclusive interventions that address barriers across all individuals rather than being gender-specific.

D. To examine the difference between type of barriers and leisure-time physical activity among youth

The contingency coefficient (0.779) indicated a strong association between barriers and activity levels. However, the chi-square test (p = 0.063) showed no statistical significance, suggesting that barriers may not universally determine participation levels despite their apparent influence (Table 1).

TABLE I
Chi-square Analysis of the Association Between Barriers and Leisure-Time Physical Activity Participation Among Youth

	Leisure-Time Physical Activity Participation Among Youth	
Barriers	Pearson Chi-Square	*.06*
	Sig (2-tailed)	*.88*
	N	*313*

III. Conclusions

Personal barriers significantly impact youth participation in leisure-time physical activity, particularly among females. While gender differences were evident, statistical analysis found no significant association between barriers and activity levels. These findings highlight the complexity of factors influencing youth engagement in physical activity, emphasising the need for targeted intervention strategies.

Acknowledgement

The authors thank Universiti Teknologi MARA (UiTM) Seremban Campus, and colleagues; Auni Zafirah, Syazwan Maszuan, Amin Salleh, and Jacqueline Jalong for their support in this study.

N.A.N., Zawawi, & R.A., Latif, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

References

[1] World Health Organization (WHO). (2022). Global status report on physical activity 2022. World Health Organization

[2] Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). *A review of correlates of physical activity of children and adolescents.* Medicine & Science in Sports & Exercise, 32(5), 963-975.

[3] World Health Organization. (2018). *Global Action Plan on Physical Activity 2018–2030: More Active People for a Healthier World*. WHO.

[4] Trost, S. G., Pate, R. R., Sallis, J. F., Freedson, P. S., Taylor, W. C., & Dowda, M. (2002). *Age and gender differences in physical activity and physical activity determinants in youth.* Journal of School Health, 72(8), 303-307.

EXPLORING THE RELATIONSHIP BETWEEN SERVICE QUALITY AND STUDENT SATISFACTION IN SPORTS FACILITY MANAGEMENT: EVIDENCE FROM A HIGHER EDUCATION SETTING

Anis Khalida Khalid, & Siti Aida Lamat*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

*Corresponding author: sitiaida@uitm.edu.my

Keywords: Service quality, Student satisfaction, Sports facilities, Higher education institutions, Assurance

I. Introduction

This study examines the relationship between service quality and student satisfaction with sports facilities at IKTBN Chembong. It identifies preferred service quality factors, measures satisfaction levels, and investigates their relationship. Addressing gaps in Malaysian contexts, it explores how service quality impacts sports participation and engagement. The research contributes empirical evidence to improve infrastructure and enhance student satisfaction in sports facilities.

II. Methods

This study employs a non-experimental quantitative approach using surveys to assess service quality and student satisfaction at IKTBN Chembong. A total of 241 students were surveyed, ensuring data accuracy. Descriptive analysis was conducted to examine demographics, while correlation analysis using Jamovi software explored relationships between service quality and satisfaction. Findings aim to provide insights into enhancing sports facility services.

III. Results and Discussion

A. Assurance

Students rated assurance as the highest service quality factor, aligning with previous studies that found a positive relationship between service quality and student satisfaction. No surprising findings emerged.

B. Service quality

Overall, 93% of students were satisfied, with assurance receiving the highest mean score (3.64 ± 0.79) and tangibles the lowest (3.28 ± 0.79). Satisfaction levels did not vary by demographics.

C. Relationship Between Service Quality and Student Satisfaction

A moderate, statistically significant correlation (r = 0.62, p<0.005) was found between service quality and student satisfaction, with assurance having the strongest impact. These findings highlight key areas for improvement and offer actionable recommendations to enhance sports facility services at IKTBN Chembong (Table 1).

TABLE I
Relationship Between Service Quality and Student Satisfaction Towards Sport Facilities in IKTBN

		Student Satisfaction
Service Quality	Pearson	*0.62*
	Sig (2-tailed	*<0.005*
	N	*201*

IV. Conclusions

This study confirms a positive relationship between service quality and student satisfaction at IKTBN Chembong sports facilities. Assurance emerged as the most influential factor, while tangible aspects require improvement. The findings provide valuable insights for enhancing facility services, ensuring better student experiences, and guiding future infrastructure development to improve overall satisfaction.

Acknowledgment

The authors sincerely thank Nur Diana Andi Azis, Nurul Ain Iftah Suhaimi, Siti Khairunisa Othman, Rina Najwa, and Azharizal, Assistant Director of IKTBN Chembong, for their invaluable support and contributions to this research.

References

[1] Azram, M. A. B. B. R., Mazalan, N. S., & Rezawana, W. (2023). The relationship between sports facility services and athletes' satisfaction at the National University of Malaysia. International Journal of Social Science and Human Research, 6(08).

[2] Rajan, K. (2024, April 19). State governments should give more priority to sports funding. The Straits Times. Retrieved August 8, 2024,fromhttps://www.nst.com.my/sports/others/2024/04/1040090/state-governments-should-give-more-priority-sports-funding

A.K., Khalid, & S.A., Lamat, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

THE IMPACT OF NATURE ENGAGEMENT ON STUDENT WELL-BEING: EXAMINING THE RELATIONSHIP BETWEEN OUTDOOR RECREATION AND PERCEIVED BENEFITS

Muhammad Zulhairie Zulazizi, & Ummi Kalthum Mohd Mokhtar*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: ummikalthum@uitm.edu.my

Keywords: Outdoor Recreation, Perceived Well-being, University Students, Nature, Mental Health

I. Introduction

This study explores the influence of outdoor recreation on the perceived well-being of nature [1] among FSR students at UiTM Seremban 3. It aims to determine the role of outdoor activities in shaping student well-being and investigate the relationship between recreation and nature's perceived benefits, contributing valuable insights into student wellness and environmental engagement [2].

II. Methods

The study employed convenience sampling to select 334 FSR students at UiTM Seremban 3. A structured questionnaire captured demographic data, outdoor recreation preferences, and perceived well-being effects using Likert scales. Descriptive statistics assessed participation trends and well-being effects, while Pearson correlation analyzed the relationship between outdoor recreation and perceived well-being, providing quantitative insights into student wellness and environmental engagement.

III. Results and Discussion

A. Outdoor Recreation

FSR students showed high engagement in outdoor recreation, with "focus on experience" rated highest (4.20 ± 1.32). Engagement levels were consistent across activities, emphasizing freedom, self, and nature as primary motivators.

B. Perceived well-being

Perceived well-being effects highlighted balanced restoration (3.12 ± 0.58), social well-being (3.12 ± 0.52), and physical sensations (3.13 ± 0.52), indicating moderate well-being outcomes.

C. Relationship between Participation In Outdoor Recreation And Perceived Well-Being Of Nature

A strong positive correlation (r = 0.732, p<0.001) was found between outdoor recreation and perceived well-being, confirming that greater participation significantly enhances well-being dimensions.

TABLE I
Relationship Between Outdoor Recreation and Perceived Well-being

		Perceived well-being
Outdoor Recreation	Pearson *r*	*0.732*
	df	*343*
	p-value	*<0.001*
	N	*345*

IV. Conclusions

This study confirms that outdoor recreation positively influences perceived well-being among FSR students at UiTM Seremban 3. Participation promotes restoration, social well-being, and physical sensations, with a strong correlation between recreation and well-being. These findings underscore the importance of outdoor activities for improving students' holistic well-being and highlight the value of fostering such opportunities within academic environments.

Acknowledgment

The researcher extends gratitude to the students of Universiti Teknologi MARA Negeri Sembilan branch for their participation and to Madam Ummi Kalthum for her invaluable supervision.

References

[1] Puhakka, Riikka. (2021). University students' participation in outdoor recreation and the perceived well-being effects of nature. Journal of Outdoor Recreation and Tourism. 36. 100425. 10.1016/j.jort.2021.100425.

[2] Nie, Xuanyi, et al. "The Varied Restorative Values of Campus Landscapes to Students' Well-Being: Evidence from a Chinese University." BMC Public Health, vol. 24, no. 1, 16 Feb. 2024, https://doi.org/10.1186/s12889-024-17952-w.

M.Z., Zulazizi, & U.K.M., Mokhtar, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

EXPLORING THE TENDENCY TO AVOID PHYSICAL ACTIVITY AND SPORTS IN UNIVERSITY STUDENTS

Emelly Wendy Islee, & Patricia Pawa Pitil*
Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA
*Corresponding author: patriciapawa@uitm.edu.my

Keywords: Body Mass Index, Physical Inactivity, Tendency to Avoid Physical Activity and Sports, University Students

I. Introduction

Physical inactivity significantly contributes to the onset of noncommunicable diseases (NCDs) such as cardiovascular disease, diabetes, and obesity, and is a major factor in global mortality rates. University students, particularly those aged 20–29, exhibit higher rates of inactivity compared to other age groups, largely due to factors such as body dissatisfaction, health awareness, and life transitions [1]. These students often face shifts in lifestyle habits as they transition from adolescence to adulthood, which can impact their physical activity levels. Academic pressures, changes in social environments, and evolving body image concerns can contribute to a decrease in physical activity. This study examines the differences in the tendency to avoid physical activity and sports (TAPAS) across gender, age groups, and body mass index (BMI), providing valuable insights into the patterns and motivations that influence students' engagement in physical activity.

II. Methods

This survey-based study utilized an online form distributed between October and December 2024. A total of 366 university students from three UiTM Sarawak campuses—Samarahan Campus, Samarahan Campus 2, and Mukah Campus—participated. The sample included students from diverse faculties and programs, utilizing the stratified random sampling technique. TAPAS was measured using the established instrument [2]. The Statistical Package for the Social Sciences (SPSS) was used to analyze differences in the tendency to avoid physical activity and sports across gender, age groups, and BMI categories. The mean and standard deviation were also reported.

III. Results and Discussion

A. Demographic of participants

The study involved 366 undergraduate full-time students, randomly stratified from various programs at UiTM Sarawak, aged between 18 and 25 years. Of the participants, 47% were pursuing diplomas and 53% were enrolled in bachelor's degree programs. The majority of students were of normal weight (199, or 54.5%), while 59 (16.1%) were overweight, 51 (13.9%) were obese, and the remaining 57 students (15.6%) were underweight.

B. TAPAS mean score by demographics of the participants

The independent sample t-test revealed a significant difference in TAPAS scores between male and female students (p<0.05). This suggests that male students tend to avoid physical activity and sports more than female students. One possible explanation is that males may experience greater pressure related to performance and competition in sports, leading to avoidance due to fear of judgment or failure. Although various studies have reported that males are generally more physically active than females [3,4], the tendencies observed in the current sample might be influenced by peer pressure. Non-athletes, in particular, may have less involvement in physical activity and thus participate less in sports.

On the other hand, there is a significant difference in TAPAS scores between BMI categories (p<0.05). Students with normal weight showed higher levels of avoidance. Post-hoc Tukey comparisons revealed that all BMI categories exhibited higher avoidance compared to obese students. This finding suggests that those who do not perceive an immediate health risk may lack motivation to engage in physical activities. Specifically, normal weight students may believe they do not need exercise to maintain their weight, leading to lower participation in sports and fitness activities. In contrast, students in the obese category showed the least tendencies to avoid physical activity, highlighting their awareness of the need to be physically active for health reasons. Interestingly, although individuals in the obese category have been reported to avoid social physical activities due to weight stigma [5], this was not observed in the current sample. Age groups showed no significant differences in TAPAS scores (p<0.05), indicating that age did not emerge as an influencing factor.

TABLE I
TAPAS Mean Score by Demographics (N = 366)

	Gender			
	Male		*Female*	
TAPAS Score (M ± SD)	3.98 ± 0.95*		3.41 ± 0.94*	
	Age groups (years)			
	18-20	*21-23*	*24-26*	*> 27*
	3.63 ± 0.91	3.63 ± 1.02	3.54 ± 1.08	4.14 ± 1.02
	BMI categories (kg/m²)			
	UW	*NW*	*OW*	*OB*
	3.61 ± 0.90*	3.77 ± 0.87*	3.65 ± 1.07*	3.63 ± 0.99*

*Significant difference at p<0.05.

E.W., Islee, & P.P., Pitil, *Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.*

IV. Conclusions

This study provides important insights into the behavior of university students who avoid physical activity and sports, particularly among male students and those with normal weight. These tendencies were consistent across age groups. Universities could diversify physical activity promotion efforts to better engage male students, as physical activity participation was predominantly observed among female students. Further research is needed to explore the underlying causes of these behaviors and to identify potential interventions that could encourage more active lifestyles among university students

Acknowledgment

We would like to express our sincere gratitude to all the participants of this study for their time and valuable input. We also wish to acknowledge the support provided by the faculty and staff at UiTM Sarawak for facilitating the data collection process.

References

[1] D. P. Bui and D. A. Turner, "Physical inactivity and its impact on university students' health and well-being: A systematic review," Journal of American College Health, vol. 69, no. 2, pp. 147-158, 2021, doi: 10.1080/07448481.2020.1832009.

[2] N. Bevan, K. S. O'Brien, J. D. Latner, C. Y. Lin, B. Vandenberg, R. Jeanes, and X. C. C. Fung, "Weight stigma and avoidance of physical activity and sport: Development of a scale and establishment of correlates," Int. J. Environ. Res. Public Health, vol. 19, no. 23, p. 16370, 2022, doi: 10.3390/ijerph192316370.

[3] World Health Organization, "Physical activity," World Health Organization, [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/physical-activity. [Accessed: 31-Jan-2025].

[4] T. Strain, R. Abdul Raheem, et al., "National, regional, and global trends in insufficient physical activity among adults from 2000 to 2022: A pooled analysis of 507 population-based surveys with 5·7 million participants," The Lancet Global Health, vol. 12, no. 8, pp. e1232–e1243, 2024, doi: 10.1016/S2214-109X(24)30242-2

[5] H. K. Thedinga, R. Zehl, and A. Thiel, "Weight stigma experiences and self-exclusion from sport and exercise settings among people with obesity," BMC Public Health, vol. 21, p. 565, 2021, doi: 10.1186/s12889-021-10565-7

Proceedings of the International Graduate Colloquium:
Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK 2025,
Series 1, 5th–6th February, Malaysia.

Universiti Teknologi MARA (UiTM), Negeri Sembilan Branch, Seremban Campus,
Faculty of Sports Science and Recreation (online)

e-ISBN | 978-629-99383-7-8 (online)
DOI | 10.5281/zenodo.14904857
Published 22nd February 2025

9 786299 938378

COLLOQUIUM PROCEEDINGS

i-SPEAK2025

SERIES 1