Mental toughness training circle (MTTC): what is its impact on the mental toughness, anxiety, and academic performance of college-level athletes and non-athletes?

Círculo de entrenamiento de fortaleza mental (MTTC): ¿Cuál es su impacto en la fortaleza mental, la ansiedad y el rendimiento académico de los atletas y no atletas de nivel universitario?

Authors

Miftah Fariz Prima Putra[1]
Sutoro Sutoro[1]
Agus Zainuri[1]
Gerdha Kristina Ivony Numberi[1]
Dewi Nurhidayah[1]
Akhmad Kadir[1]

[1]Universitas Cenderawasih (Indonesia)

Corresponding author:
Miftah Fariz Prima Putra
mifpputra@gmail.com

How to cite in APA

Putra, M. F. P., Sutoro, S., Zainuri, A., Numberi, G. K. I., Nurhidayah, D., & Kadir, A. (2025). Mental toughness training circle (MTTC): what is its impact on the mental toughness, anxiety, and academic performance of college-level athletes and non-athletes? *Retos*, *64*, 866–876. https://doi.org/10.47197/retos.v64.109694

Abstract

Introduction and objectives: Even though MTTC is claimed to be a more systematic and comprehensive mental training model, there is not much evidence regarding the impact of implementing the MTTC model on athletes and non-athletes. Based on this, this research aims to examine the impact of the MTTC model mental training on athletes and non-athletes, both on psychological and cognitive aspects.
Methodology: This study uses a mixed-method approach with embedded design. There are two groups, namely the intervention group (IG) which consists of 47 people and the control group (CG) which consists of 26 people.
Results: The results of the study show that providing MTTC metal training has a significant effect on mental toughness ($\chi2 = 12.74$; $p < .001$), anxiety ($\chi2 = 19.03$; $p < .001$), and learning achievement ($\chi2 = 5.38$; $p < .05$). Apart from that, the implementation of MTTC was also responded positively by respondents ($\chi2 = 19.86$; $p < .001$). However, based on status (athlete vs. non-athlete), it was found that there was a significant difference only in the mental toughness and social validation variables ($p < .001$) while in the anxiety and academic achievement variables there were no significant differences ($p > .05$).
Conclusion: The MTTC mental training model can be an alternative program to improve the psychological quality of athletes, but for subjects who are not athletes, it is necessary to adapt the examples and discussion so that they fit the context of the subject receiving mental training.

Keywords

Mental toughness training circle (MTTC); mental toughness; academic achievement; anxiety.

Resumen

Introducción y objetivos: Si bien se afirma que el MTTC es un modelo de entrenamiento mental más sistemático y completo, no hay mucha evidencia sobre el impacto de la implementación del modelo MTTC en atletas y no atletas. En base a ello, esta investigación pretende examinar el impacto del modelo MTTC de entrenamiento mental en deportistas y no deportistas, tanto en aspectos psicológicos como cognitivos.
Metodología: Este estudio utiliza un enfoque de método mixto con diseño integrado. Hay dos grupos, el grupo de intervención, que consta de 47 personas, y el grupo de control, que consta de 26 personas.
Resultados: Los resultados del estudio muestran que brindar capacitación sobre metales MTTC tiene un efecto significativo en la fortaleza mental ($\chi2 = 12,74$; $p< .001$), la ansiedad ($\chi2 = 19,03$; $p< .001$) y el logro de aprendizaje ($\chi2 = 5,38$; $p < .05$). Aparte de eso, la implementación de MTTC también fue respondida positivamente por los encuestados ($\chi2 = 19,86$; $p < 0,001$). Sin embargo, en función del estatus (atleta vs. no atleta), se encontró que hubo una diferencia significativa solo en las variables de fortaleza mental y validación social ($p<.001$) mientras que en las variables de ansiedad y rendimiento académico no hubo diferencias significativas. diferencias ($p>.05$).
Conclusiones: El modelo de entrenamiento mental MTTC puede ser un programa alternativo para mejorar la calidad psicológica de los deportistas, pero para los sujetos que no son deportistas es necesario adaptar los ejemplos y las discusiones para que se ajusten al contexto del sujeto que recibe el entrenamiento mental.

Palabras clave

Círculo de entrenamiento de fortaleza mental (MTTC); fortaleza mental; rendimiento académico; ansiedad,

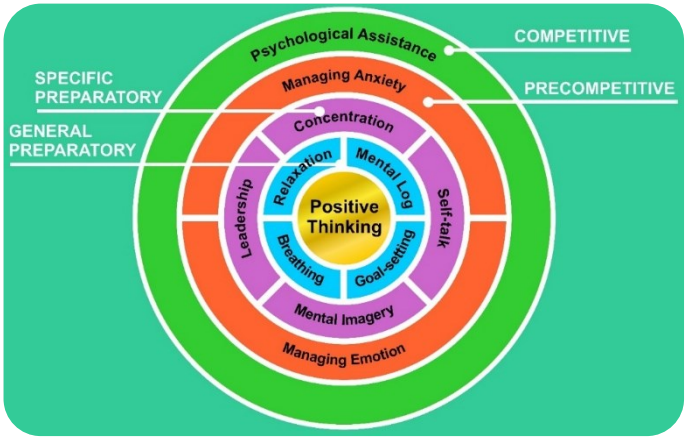
Introduction

In the view of sports science disciplines, an athlete's success is determined by four key factors: physical, technical (skill), tactical, and mental (Guntoro et al., 2023; Liew et al., 2019). However, a study conducted by world-renowned sports psychologist, Gould et al. (2002), found that in the world's biggest sporting event, the Olympics, the factor that most determines the outcome of the match/competition (athletes' performance) in the field is "athlete mentality." This happens because, at the world elite level, physical and technical factors are not different considering that athletes have been trained with various training programs and cutting-edge methods (Maksum, 2022). That is why, the study of mental toughness has experienced an increasing trend in the past two decades (Gucciardi, 2017) because its contribution to athlete performance on the field is crucial (Nam et al., 2022; Chojnicki et al., 2021).

Scientific references with international reputation show that there are several mental training programs created by scientists, such as PST (Fournier et al., 2005; Golby & Wood, 2016; Brewer & Shillinglaw, 2016), MST (Gucciardi et al., 2009; Dohme et al., 2020), and MTT (Ragab, 2015; Mostafa, 2015). The results of the analysis we conducted show that the mental training program above is currently less comprehensive (Sutoro et al., 2023). There are other skills that athletes need to develop better mental toughness, such as positive thinking, leadership, and managing anxiety and emotions. Apart from that, the stages of training for each mental skill are also not explained in detail in the mental training model above. Besides, the use of the term is also different in each stage or group of mental training within it. Some categorize them into basic mental skills and advanced mental skills; some use mental skill types, namely foundation, performance, personal development skills, and team skills; and skill levels, namely performance skills, preparatory skills, and basic skills. Therefore, the Mental Toughness Training Circle (MTTC) training model (Sutoro et al., 2023) was created and has become an alternative to the newest and most advanced mental training program in the discipline of sports psychology, which is more comprehensive and the terms in it are friendly for sports coaches (Guntoro et al., 2022; Putra et al., 2023).

MTTC is a set of mental training models that are more systematic and comprehensive compared to other models created by scientists (Sutoro et al., 2023; Guntoro et al., 2022) for example Psychological Skill Training (PST) (Fournier et al., 2005; Sheard & Golby, 2006; Golby & Wood, 2016; Brewer & Shillinglaw, 2016), Mental Skill Training (MST) (Gucciardi et al., 2009; Dohme et al., 2020), and Mental Toughness Training (MTT) (Ragab, 2015; Mostafa, 2015). The facts show that MTTC appears to be more comprehensive because it contains 11 mental skills exercises which are divided into four parts, namely general preparatory, specific preparatory, precompetitive, and competitive exercises (Figure 1). These terms (general preparatory, specific preparatory, pre-competitive, and competitive) follow the terminology of physical training programs, techniques, and tactics commonly used by sports coaches (Bompa & Buzzichelli, 2019) so that mental training programs are expected to be understood and carried out in harmony with other training programs (Putra et al., 2023).

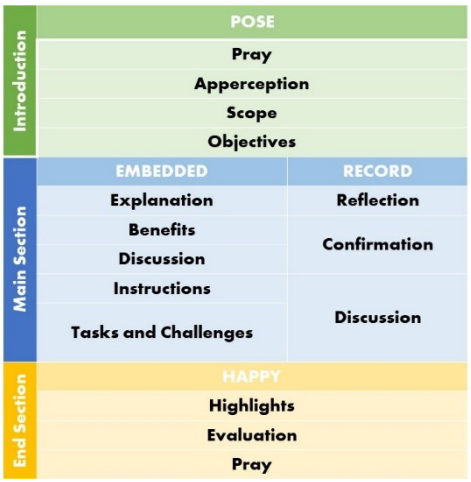
Figure 1. MMTC Mental Training Model



MTTC is also equipped with an operational framework called MTTC components (Figure 2). This component consists of three parts, namely, introduction, main section, and end section (Sutoro et al., 2023;

Guntoro et al., 2022; Putra et al., 2023). In the mental rehearsal models mentioned previously above (Fournier et al., 2005; Sheard & Golby, 2006; Golby & Wood, 2016; Brewer & Shillinglaw, 2016; Gucciardi et al., 2009; Dohme et al., 2020; Ragab, 2015; Mostafa, 2015), such a section does not exist. Therefore, this is an advantage that the MTTC model has compared to mental training models that have been created by international scientists. Apart from that, MTTC is also equipped with a Mental Skills Training Plan (MSTP) (Figure 2).

Figure 2. MTTC Model Operational Framework



MSTP contains a more detailed description regarding the implementation of 11 mental skills training given to athletes (Sutoro et al., 2023; Guntoro et al., 2022; Putra et al., 2023). In terms of training programs usually created by sports coaches, MSTP is equivalent to "Unit" or in the context of campus learning, "MSTP" is equivalent to "lecture unit." MSTP is structured following the pattern or framework as contained in the MTTC component (Figure 2). Thus, the claim that MTTC is a more systematic and comprehensive mental training model is not a figment (Sutoro et al., 2023; Guntoro et al., 2022; Putra et al., 2023).

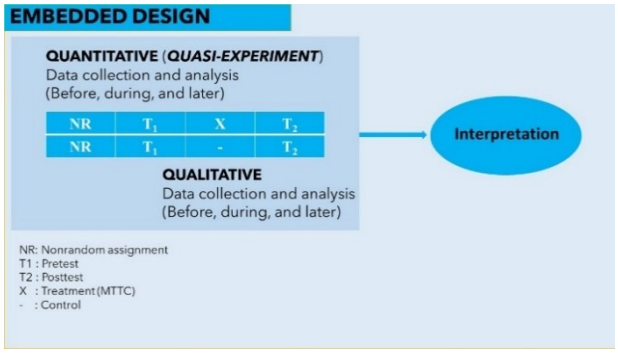
Even though MTTC is claimed to be a more systematic and comprehensive mental training model, there is not much evidence regarding the impact of implementing the MTTC model on athletes and non-athletes. Based on this, this research aims to examine the impact of the MTTC model of mental training on athletes and non-athletes, both on psychological (mental toughness and anxiety) and cognitive (learning achievement) aspects. In addition, this study also explored the responses of athletes and non-athletes to the application of the MTTC mental training model.

Method

To achieve the research objectives, the researchers used a mixed-method approach with an embedded design (Figure 3) (Ryba et al., 2022).
Figure 3 shows that there are two approaches used, namely quantitative and qualitative approaches. The quantitative approach is more dominant, while the qualitative approach is complementary/secondary which is embedded in the research process. For the quantitative approach, a quasi-experiment with an untreated control group design with dependent pretest and posttest samples (also called a non-randomized pretest-posttest control group design) was used.

The qualitative approach aims to explore the processes felt by research subjects, especially in the treatment group. Information gathering at this stage was carried out through in-depth interviews and questions focused on the process of implementing MTTC mental training and what the subject felt. In this way, researchers could obtain more in-depth information regarding the application of the MTTC mental training model from the perspective of athletes and non-athletes.

Figure 3. Research Design



Participants

The research subjects were college-level athletes and non-athletes who were studying at the Department of Sports Science, Faculty of Sports Science, Cenderawasih University. There are three classes used in this study, namely two classes as intervention group (IG) and another class as control group (CG). The IG consisted of two classes totaling 51 people, but in the study process, there were seven people whose data were not analyzed further because these subjects did not take part in the three activities in the research process. Thus the number of research subjects analyzed in the IG was 47 people with details of 36 males and 11 females, the average age of the subjects was 21.02 ± 1.05 years, and the number of athletes was 21 and that of non-athletes was 26.

For CG, there were 29 people, but three people did not take part in the posttest, so there were 26 subjects whose data were analyzed in the research. In the CG, there were 19 males and seven females with an average age of 20.00 ± 2.07 years and 15 subjects were athletes and 11 non-athletes.

Procedure

This study was approved by the Institutional Health Research Ethics Committee Number: 065/KEPK-FKM UC and all research subjects signed an informed consent form. In the initial stage, research subjects in IG and CG were given information regarding the aims, benefits, and procedures of the research. After all research subjects received this information, they were asked to sign informed consent. Then, the initial test (T1) in the study was carried out. After all subjects received the initial test, the next meeting continued with providing psychological intervention in the form of MTTC mental training to IG.

The psychological intervention given to research subjects was a set of mental skills training as outlined in the MTTC model (Sutoro et al., 2023). In the MTTC model, 11 mental skills are trained, namely: positive thinking, mental log, goal-setting, breathing, relaxation, concentration, self-talk, mental imagery, leadership, managing anxiety, and managing emotions (Sutoro et al., 2023; Guntoro et al., 2022). In this study, each MTTC mental skill was trained twice face-to-face with a face-to-face time of 75-100 minutes and one independent practice. This structured exercise was carried out three times a week. For example, mental skill training "self-talk" was given to the IG in the first and second face-to-face meetings, after that, the subjects in the IG practiced what had been trained independently. The independent practice was intended to give IG subjects time to apply what they had learned or trained.

With this form of training, the time required for MTTC intervention was 11 weeks. After all the mental skills contained in MTTC were trained on subjects in IG, the next day, all research subjects contained in IG and CG were gathered to undergo a posttest (T2). In this posttest, the order of instruments used was the same as it was during the pretest.

Instrument

A set of instruments was validated and used in this study. In general, there are four dependent variables measured in this study, namely mental toughness, anxiety, academic achievement, and research subjects' perceptions of the implementation of MTTC. MT is expressed by the mental toughness index (MTI) developed by Gucciardi et al. (2014) with a total of eight statements (e.g. I can regulate my focus when performing tasks). The MTI answer alternatives are in the form of a continuum ranging from 1 (False, 100% of the time) to 7 (True, 100% of the time). The Indonesian version of the MTI has a loading factor

value (λ = .563 to .759) with excellent internal consistency reliability (CR = .864; α = .862) and has been used in the Indonesian context (Putra, Kurdi, et al., 2024; Putra, Sutoro, et al., 2024).

To measure the level of anxiety, the Sport Anxiety Scale-2 (SAS-2) (Smith et al., 2006) was used, which consisted of 15 statements. SAS-2 has three subscales, namely somatic anxiety (e.g., My body feels tense), worry (e.g., I worry that I will not play well), and concentration disturbance (e.g., It is hard to concentrate on the game) with alternative answers in the form of a Likert scale ranging from 1 (not at all) to 4 (very much). This instrument is widely used internationally to measure anxiety levels in elite athletes (Guntoro & Putra, 2022). The Indonesian version of the SAS-2 has a factor loading value of .51 to .88 with a reliability value of .71 to .88 (Putra et al., 2021). To measure learning outcomes, Grade Point Average (GPA) documentation is used. Academic staff in the education sector were asked for assistance in documenting the GPA of research subjects.

To determine the research subjects' responses to the application of the MTTC mental training model, two instruments were used, namely the Social Validation Questionnaire (SVQ) (Gucciardi et al., 2009) which consists of five statements (e.g., How satisfied were you with the content of the program?) with a range of alternative answers ranging from 1 (very dissatisfied/very unimportant/very insignificant) to 7 (very satisfied/very important/very significant). Apart from that, in-depth interviews were also used to obtain more comprehensive information regarding the implementation of the MTTC mental training program. After each training session as provided in the MSTP MTTC model (Sutoro et al., 2023; Putra et al., 2023), we conducted direct interviews with research subjects. Examples of questions asked include: "What do you think about the mental training given? Do you feel that the mental training provided is beneficial for you? Do you feel there are obstacles in understanding the mental training given?".

Data analysis

To find out the data distribution figure, descriptive analysis is used, such as mean, standard deviation, minimum value, and maximum value. To determine the effect of the independent variable on the dependent variable, the N-Gain score on IG and CG was used and then analyzed using MANOVA. However, before the MANOVA analysis was carried out, the normality and homogeneity of the data were tested. If this assumption was violated, Multivariate Kruskal-Wallis (MKW) was used. All quantitative analyses were carried out with the help of the Jamovi program (Project, 2024). The interview data related to the application of the MTTC model was analyzed using the Miles & Huberman (1994) model consisting of data collection, data display, data reduction, and conclusion drawing/verifying.

Results

Quantitative Analysis Results

The results of the descriptive analysis are presented in Table 1. Although most of the univariate normality tests were met, the multivariate normality test found a Shapiro-Wilk value = .927 ($p < .001$), which means that the assumption of multivariate normality was not met. For homogeneity testing, we found a value of $\chi2 = 44.1$ ($p < .001$), which means that in multivariate terms the data are not homogeneously distributed. With these results, the next analysis was carried out using Multivariate Kruskal-Wallis (MKW).

Table 1. Results of descriptive analysis (IG = 47; CG = 26; n = 73)

	Group	Mental Toughness		Anxiety		Academic Achievement		Social Validation	
		Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Mean	IG	29.1	34.1	38.0	36.4	2.71	2.82	20.0	24.5
	CG	30.2	32.2	36.8	36.1	2.74	2.79	20.9	21.4
Std. Dev.	IG	4.25	5.76	3.44	3.89	.261	.348	2.60	4.44
	CG	3.28	3.93	4.09	3.73	.306	.310	2.36	2.40
Minimum	IG	20	25	30	29	2.35	2.06	15	18
	CG	25	27	29	30	2.24	2.10	17	18
Maximum	IG	38	46	45	45	3.45	3.60	27	33
	CG	37	44	43	44	3.31	3.42	25	26
Shapiro-Wilk W	IG	.967	.943	.981	.976	.884	.972	.962	.934
	CG	.958	.903	.923	.949	.957	.983	.943	.924
Shapiro-Wilk p	IG	.211	.024	.632	.440	< .001	.307	.132	.010
	CG	.361	.019	.053	.224	.341	.927	.159	.055

Note: IG = intervention group; CG = control group; Std. Dev.= Standard deviation

Before carrying out the MKV analysis, we carried out a difference analysis on the pretest data and found that for the MT variable, we got a value of F = 1.647 (p > .05), for the anxiety variable we got a value of F = 1.691 (p > .05), for the academic achievement variable we got a value F = .255 (p > .05), and for the social validation variable, the value F = 2.087 (p > .05). These results indicate that there is no significant difference in the pretest data between the intervention group (IG) and the control group (CG). The results of the Multivariate Kruskal-Wallis (MKW) analysis are summarized in Table 2. From the MKW results it can be stated that in the mental toughness, anxiety, and social validation variables, it was found that there were significant differences between the group that received intervention (IG) and the group that did not receive MTTC training. (CG) at a significance level of .001. However, for the academic achievement variable, there is a difference at the .05 level of significance. With these results, it can be stated that there is an effect of providing mental training with the MTTC model on the variables of mental toughness, anxiety, academic achievement, and social validation.

The analysis was continued to determine whether there were differences between subjects who were athletes and non-athletes in the group that received MTTC training. The results of the analysis showed that there was a significant difference only in the mental toughness and social validation variables (p < .001) while in the anxiety and academic achievement variables there were no significant differences (p > .05).

Table 2. Summary of multivariate Kruskal-Wallis results

	χ^2	df	p
IG vs. CG			
Mental Toughness	12.74	1	< .001
Anxiety	19.03	1	< .001
Prestasi akademik	5.38	1	.020
Social validation	19.86	1	< .001
Athlete vs. Non-athlete			
Mental Toughness	22.34071	1	< .001
Anxiety	0.00187	1	.965
Prestasi akademik	0.68054	1	.409
Social validation	34.37173	1	< .001

Qualitative analysis results

The results of the analysis of interview data on the group of subjects who received treatment in the form of MTTC training showed that the research subjects felt that the mental training given to them was something new. So far, research subjects tend to know and receive training related to physical and technical aspects. That is why the mental training provided in this research is a new experience for the research subjects.

"This is something new for me. We are shown a systematic and structured mental training program. And I feel like this training helps me get better as a person." (P8)

"Eh... so far we have only trained physically and technically... But now we are being given mental training... ee this is a new experience for me." (P11)

The provision of MTTC was perceived positively by respondents who received mental training. They feel good about this mental exercise. This happens because in MTTC not only theory is given but concrete examples and continued practice directly by each participant make the training more interesting and not boring.

"*...At first I was a little confused*. "*This is what mental training is like... But after following it, it turns out that mental training is fun*..." (P4)

"*I feel happy and not bored in this training. For each exercise, we are given an example and then asked to practice. Even though we are sometimes confused, because we are asked to practice, we know how to do it.*" (P32)

Research subjects in the group that received mental training intervention felt that MTTC provided them with benefits. They felt there was a change in seeing things that happened to them in a positive direction. Apart from that, they also felt more in control of themselves if things happened that were out of their control.

"*I feel something has changed in me. Eee... if something bad happens to me, I now try to see the positive side. Not like before where I get emotional easily hehehe...*" (P27)

"*... this mental training is very good because I become braver and can focus on making personal targets. Yes, previously it flowed like water, but now I know how to make realistic and measurable targets. This is very good for us, isn't it...*" (P18)

Even though the response was positive, this study also found that the research subjects felt there were obstacles in applying or carrying out the exercises independently because the explanations and examples given tended to be in technical terms about sports and not in a general context such as lectures on campus. That is why the subjects who are not athletes feel there are obstacles in practicing and carrying out independent training.

"*I am often confused because what is discussed is technical matters related to competitions or athletes. Eee... I'm not an athlete like that... We are asked to imagine during a match... facing an opponent and so on. Well, I don't have that experience so I imagine I'm confused myself hehehe...*" (P6)

"*Actually, I sometimes get confused. Eee... the examples are about athletes or competitions like that. But I tried to understand the explanation given. That's why my practice is usually wrong he...he...he*" (P38)

Discussion

This research aims to examine the impact of the MTTC model mental training on athletes and non-athletes, both on psychological (mental toughness and anxiety) and cognitive (learning achievement) aspects. In addition, this study also explored the responses of athletes and non-athletes to the application of the MTTC mental training model. The research results found that providing MTTC mental training had a significant effect on psychological aspects (mental toughness and anxiety) as well as cognitive aspects (learning achievement). There is evidence that mental toughness can be developed in many ways (Bull et al., 2005), however, there is no research to date identifying the superiority of any method (Clough & Strycharczyk, 2012). Thus, the results of this study are at the forefront of knowledge regarding mental training models that are linked to psychological and cognitive aspects.

MTTC is a mental training device created to improve the quality of mental toughness (Sutoro et al., 2023). Eleven mental skills are trained in the MTTC model (Putra et al., 2023) and these skills are closely related to forming mental toughness. That is why, it is very natural that the research subjects who received MTTC mental training experience an improvement in their mental quality. As stated by research subjects who received MTTC mental training: "After taking intensive mental training, I became better mentally. Eee... I don't give up so easily... I'm more confident and brave enough to try" (P35). In the sports psychology literature, the dimension of mental toughness is a construct that is widely studied and discussed by scientists (Gucciardi, 2017). There is a belief that whether athletes are successful or not on the field, a factor that plays a big role in it is mental toughness (Liew et al., 2019). With the results of this study, the MTTC mental training model can be a choice in improving psychological (mental) conditions through mental training interventions.

Apart from having an impact on mental toughness, providing MTTC mental training also has an impact on anxiety. As in the MTTC mental training program, some skills are very closely related to managing anxiety, such as breathing, relaxation, self-talk, and managing anxiety (Sutoro et al., 2023). With this form of mental skills training, it is not surprising that subjects who received MTTC mental training improved their anxiety levels and felt they could control it. "I feel calmer and more in control. When I face something beyond my control, I don't panic or worry easily. Maybe it's because I remember the mental exercises it provided... such as breathing, relaxation, and anxiety management. So, I feel that following mental training has an impact on me" (P14). In competitive sports, anxiety is believed to be a factor that determines athletes' performance on the field (Putra & Guntoro, 2022). That is why athletes often complain about this dimension because when they experience excessive levels of anxiety, their best performance will not be displayed.

This research also investigates the impact on cognitive aspects (learning achievement) of students on campus. The results of the study show that there is an effect of MTTC mental training on student academic achievement. "...the mental training we do trains us to create targets or goals. Well, I feel I can

focus on achieving the targets I set, including academically" (P7). The findings of this study are in line with other studies that investigated the relationship between mental toughness and academic achievement, namely those that found there was a positive relationship between mental toughness and academic achievement (Papageorgiou et al., 2018). Further analysis of the subjects in the IG showed that there was no difference between subjects who were athletes and non-athletes. This indicates that although there is an effect of providing MTTC mental training on academic achievement, there is no difference between athletes and non-athletes.

Apart from that, this study also found that the application of MTTC mental training was perceived positively by research subjects who received MTTC mental training. These results are visible from quantitative and qualitative data. However, on the other hand, further analysis in the IG group found that there were significant differences between subjects who were athletes and non-athletes. Subjects with athlete status appear to have a higher average score than non-athletes. This indicates that subjects with athlete status have higher satisfaction regarding the mental training provided. “This mental exercise is very interesting. "Eee... I think I was able to follow the training given, that's why I felt there was a change... Eee... I'm happy because I know how to think, and then manage emotions, anxiety, and so on" (P36). Even though the subjects who were athletes responded positively, non-athlete subjects felt that the MTTC mental training program was very technical for athletes so they felt that MTTC was less applicable for non-athletes. “…even though I am a sports student, I have never participated in a sports competition. So, if we give examples related to technical competitions or athletes, we are sometimes confused" (P19). What was said by the research subjects is true, considering that MTTC was designed specifically for athletes, the examples and discussions in MTTC mental training also focus on the world of sports and athletes.

Even though this study has attempted to reveal in-depth the effect of implementing the MTTC mental training model, we consider that there are several limitations to this study. First, the subjects involved were limited to athletes at the collegiate level. Athletes below their age, such as middle school or high school level athletes, were not investigated in the study. The results of a study comparing mental toughness in college students and school-level students showed that there were significant differences (Putra, Wanena, et al., 2024). Thus, even though it was found that there was an effect of the MTTC mental training program, the evidence was still limited to athletes with age characteristics according to the subjects involved in this study. Second, the achievements measured in this study were not related to sports performance. On the other hand, we think it is very important to know the impact of mental training on sports performance and other variables such as athletes' happiness and religiosity (Wandik et al., 2024). In addition, academic performance, which is measured for only eleven weeks in a higher education setting or on campus, is considered short because it generally lasts sixteen weeks. Based on these limitations, the recommendation proposed for future studies is that further studies should add or involve athletes with age characteristics that are teenagers and adults. Apart from that, it is also necessary to investigate and relate it to sports achievements. With regard to data collection, whether related to mental toughness or academic achievement, it should not be done twice but can use a time series such as three times so that changes that occur can be monitored more comprehensively.

Conclusions

Based on the results and discussion, it can be concluded that the MTTC mental training model has a significant effect on psychological aspects (mental toughness and anxiety) as well as cognitive aspects (learning achievement). Apart from that, the application of MTTC was also responded to well by subjects who received mental training, especially those with athlete status. Non-athlete subjects perceived technical discussions related to the world of sports and athletes as not being appropriate to their world, so in these exercises, they sometimes found it difficult to understand. With these findings, the MTTC model of mental training can be an alternative mental training, especially to improve psychological aspects such as mental toughness and anxiety. To apply MTTC in an academic setting, it is necessary to provide examples and discussions that are appropriate to the academic context so that subjects who receive mental training will easily understand the exercises given.

Acknowledgements

We would like to thank all participants who helped us and were willing to be involved in this research.

Financing

This study was funded by Direktorat Riset, Teknologi, dan Pengabdian Kepada Masyarakat (DRTPM), Direktorat Jenderal Pendidikan Tinggi, Riset, dan Teknologi, Kementerian Pendidikan dan Kebudayaan (Grant No. 543/UN20.2.1/PG/2024).

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Authors' and translators' details:

Miftah Fariz Prima Putra	mifpputra@gmail.com	Author
Sutoro Sutoro	prof.sutoro@gmail.com	Author
Agus Zainuri	azainuri_fkm@yahoo.com	Author
Gerdha Kristina Ivony Numberi	gerdhanumberi26@gamil.com	Author
Dewi Nurhidayah	dwhidayah@gmail.com	Author
Akhmad Kadir	akhmaduncen@gmail.com	Author
Suhaini M. Saleh	suhaini.msaleh@gmail.com	Translator