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Effects of Online Sport Counseling in Adolescent Taekwondo Athletes: Real Match After the COVID-19 Pandemic

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ABSTRACT

Junla D, Mitranun W, Sittiprapaporn P, Yotanyamaneewong S. Effects of Online Sport Counseling in Adolescent Taekwondo Athletes: Real Match After the COVID-19 Pandemic. **JEPonline** 2023;26(6):1-10. Sixteen participants were selected for this study. Eight engaged in an 8-week online counseling program (Online Group) that involved two 30-minute sessions per week, while the remaining 8 athletes formed the Control Group (CG) and continued their regular practice routines without counseling. The data were collected before their first real match (M1) and again before their second real match (M2). The study focused on evaluating cognitive reappraisal skills and physiological responses related to emotions, including heart rate, blood pressure, and neurological signals. Comparing the Online Group to the Control Group, the results revealed no statistically significant differences in cognitive reappraisal skills, diastolic blood pressure, beta wave activity, and alpha wave activity. However, the Online Group did demonstrate significantly lower diastolic blood pressure and heart rate at a significance level of 0.05. These initial findings suggest that online sport counseling did not lead to improvement in cognitive reappraisal skills but did have a notable impact on reducing diastolic blood pressure and heart rate. Thus, the intervention may influence the athletes' responses during moments of acute stress but may not affect the specific skills they employ during intense real matches.

Key Words: Emotion Regulation, Online Counseling, Taekwondo

INTRODUCTION

Between 2019 and 2022, COVID-19 had a significant physical and psychological impact on humans. The World Health Organization (WHO) recommended physical distancing measures in 2020 to safeguard everyone from transmission. Despite relatively low total case and death numbers in Thailand, Thai people reported the highest depression scores (17). Furthermore, Kenneth et al. (7) observed an increase in alcohol and substance use problems, particularly among adolescents following the onset of the COVID-19 pandemic. Charatcharoenwitthaya and Niltwat (2) found that restrictive public health measures disrupted Thai adolescents' school routines and social interactions, leading to a more sedentary lifestyle, physical changes, increased anxiety, depression, and behavioral problems. Moreover, adolescents who reported internalizing problems before the pandemic reported worsening conditions after the onset of the pandemic (10).

The WHO's recommendation for physical distancing also affected athletes' training, practice, and competitions (20). In April 2020, the International Olympic Committee and the Tokyo 2020 Organizing Committee announced the rescheduling of the Tokyo 2020 Olympics to 2021. This left athletes in a vulnerable period, unable to meet with their teammates or coaches. Some athletes faced challenges related to sleep, eating habits, loneliness, and anxiety (15). Notably, adolescent athletes not only faced mental health concerns but also stood to benefit from psychological skills training. As suggested by Lim and O'Sullivan (11), taekwondo athletes needed to focus on honing their sport skills, physical fitness, and mental fitness. Capranica et al. (1) supported the idea that mental fitness not only reduced the athletes' stress and anxiety, but also enhanced their peak performance. Thus, mental well-being and mental fitness are essential for adolescent athletes, and the present study concentrates on taekwondo, which is one of the successful and popular sports in Thailand.

Many researchers have concentrated on emotion skills in adolescents due to their pivotal role in development and their potential to cause internalizing problems (5). One crucial emotion skill that contributes to the well-being and mental fitness of adolescents is emotion regulation, which involves maintaining an appropriate balance of positive and negative emotions to achieve individual goals (3,6). Emotion regulation consists of two components: (a) cognitive reappraisal (CR); and (b) emotion suppression (ES). CR is a strategy that involves changing one's thoughts about triggers to generate a more helpful and beneficial impact (4). Therefore, the present study seeks to enhance the cognitive reappraisal skills of taekwondo adolescent athletes to improve their well-being and mental fitness for competition after the COVID-19 pandemic.

Various studies have explored CR in adolescents, particularly in the undergraduate populations (4). To enhance emotion regulation skills, counseling that focuses on cognitive reappraisal along with basic psychological skills training that includes breathing exercises and imagery has been supported by previous research measuring emotion regulation skills, including CR and physiological parameters in the laboratory settings (8,9,1319). Typically, basic psychological and counseling skills training are conducted in person. However, after the onset of the pandemic, social distancing was recommended to prevent transmission. Consequently, many healthcare professionals turned to the online platforms to deliver interventions (21).

However, there is limited research on the effects of online counseling, especially in regards to CR skills in adolescent athletes. Similarly, there is a lack of studies that demonstrate the

effectiveness of online counseling on both CR and physiological responses (e.g., blood pressure, heart rate, beta waves, and alpha waves). Therefore, the purpose of this study was to examine the effects of online sport counseling for taekwondo adolescent athletes on cognitive reappraisal skills and their physiological responses, including blood pressure, heart rate, beta waves, and alpha waves.

METHODS

Participants

In January 2022, the 47th Thailand National Games (Regional 5th) took place in Lamphun (M1). Sixteen adolescent taekwondo athletes who participated in the first match (M1) and some of whom advanced to the national level event known as the 47th Thailand National Games 'Srisaket games' (M2) agreed to take part in the study. The inclusion criteria required the participants to be: (a) taekwondo athletes; (b) between 18 to 24 years of age; and (c) have a need for practicing psychological skill techniques. They were excluded from the study if they were receiving medication for mental health issues or if they attended the program for less than 80%. Ethical approval for the study was granted by the Ethics Committee of the Strategic Wisdom and Research Institute at Srinakharinwirot University (SWUEC-G-151/2564E).

Research Design

This is a pre-test and post-test study. All the participants were provided with information about the purpose of the study, the benefits, and the potential concerns. They individually read and signed an informed consent form. Then, they were randomly assigned to either the online sport counseling (i.e., Online Group) or the Control Group with 8 participants in each Group. The baseline cognitive reappraisal skills scores of both Groups were not significantly different.

Procedures

Data Collection in Real Match

To establish a baseline, cognitive reappraisal skill, heart rate, blood pressure, salivary cortisol, and neurological signals were measured on the matchday (M1) before the participants engaged in their warm-up session at the beginning of the day. Cognitive reappraisal skill (CR) for all participants was assessed using the Emotion Regulation Questionnaire-Thai version (ERQ-Thai), which was tested for reliability (Cronbach's alpha was .75). Heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP) were measured using the Microlife blood pressure monitor (Microlife Corp, Taiwan). Additionally, the participants were asked to sit for 5 minutes while regulating their emotions, and the Mind Asset (Taiwan) was used to measure neurological brain signals, specifically the beta waves and the alpha waves. After 2 months, the second matchday (M2) took place, and all the participants underwent the same measurement procedures on the morning of the matchday.

Online Sport Counseling

After the conclusion of M1 day, the Online Group commenced the online sport counseling program. This 8-week program consisted of the following: (a) basic counseling skills; (b) breathing relaxation; (c) cognitive reappraisal techniques; and (d) imagery. Content validity was assessed by inviting 5 professionals in sport psychology, and the result indicated a value of .085.

Statistical Analyses

Statistical analysis was performed using the SPSS Statistics program for MAC version 29.0 (IBM Corp., Armonk, NY, USA). Normality tests for the data were conducted using the Shapiro-Wilk Test. The Wilcoxon Signed Ranks Test was employed to compare baseline and post-2-month data for the Online Group. To determine differences between the Online Group and the Control Group upon completion of the program, the Mann-Whitney Test was performed, respectively. The significance level used was a value of $P < 0.05$. The data are presented as mean \pm standard deviation (SD).

Power Calculation

With a power ($1 - \beta$) of 0.60 and results showing a reduction in anxiety, the use of g*power 3.1 suggested that a minimum of 9 participants in each group would be needed to identify significant differences at a significance level of 0.05, considering a Cohen's d effect size of 0.96.

RESULTS

Fifteen adolescent taekwondo athletes were included in the analysis. Among them, there were 13 male participants (86.7%) and 2 female participants (13.3%) who were divided into 2 Groups. Participants in the Online Group had an average of 12.25 ± 2.17 years of experience in playing taekwondo. Conversely, the participants in the Control Group had an average of 12.75 ± 1.09 years of experience (Table 1).

Table 1. Characteristics of the Online Sport Counseling Group (n = 7) and the Control Group (n = 8).

Variables	Online Group	Control Group
Age (yrs)	19.38 ± 1.12	20.38 ± 1.09
Experiences (yrs)	12.25 ± 2.17	12.75 ± 1.09
Male (N, %)	6 (85.71)	7 (87.5)
Female (N, %)	1 (14.29)	1 (12.5)

Before the intervention began, the cognitive reappraisal skill, systolic and diastolic blood pressure, and heart rate of the Online Group participants did not differ significantly from the participants in the Control Group (Table 2). However, after 2 months of intervention, the 8 participants who received online sport counseling sessions showed lower systolic blood pressure and a lower heart rate compared to the participants in the Control Group ($P < 0.05$). Notably, the systolic blood pressure was lower than their own baseline ($P < 0.05$). Nevertheless, there were no significant differences in cognitive reappraisal skill and diastolic blood pressure between the two Groups after 2 months, and no significant changes were observed within the Online Group at the 2 time points.

Table 2. Psychological Emotion Skills and Physiological Emotion-Related Variables of the Online Sport Counseling Group (n = 7) and the Control Group (n = 8).

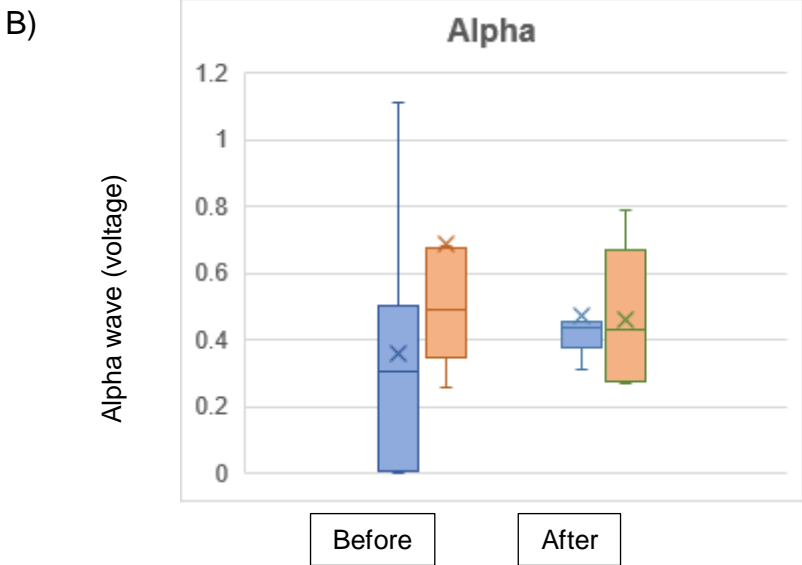
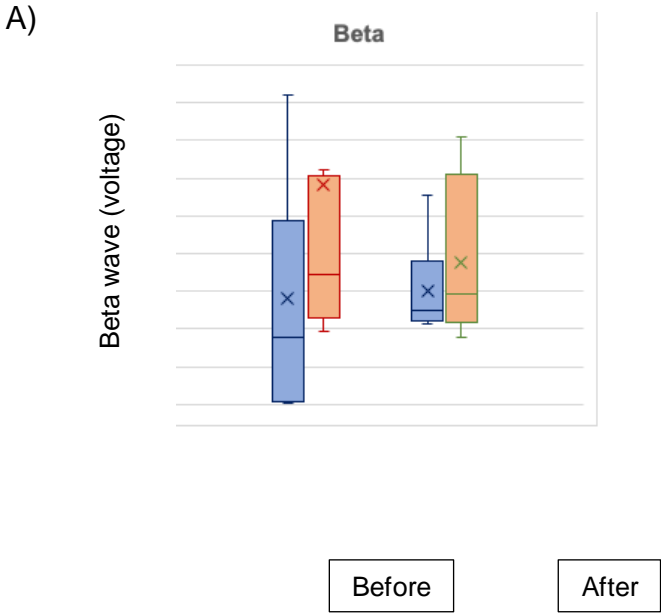
Variables	Group	Baseline	After 2 Months
Cognitive Reappraisal Skills (points)	Online	34.14 ± 5.04	34.43 ± 4.11
	Control	35.13 ± 5.16	32.33 ± 4.88
Systolic Blood Pressure (SBP) (mmHg)	Online	126.17 ± 8.68**	115.71 ± 10.82****
	Control	121.80 ± 7.12	130.28 ± 10.90*
Diastolic Blood Pressure (DBP) (mmHg)	Online	71.00 ± 10.17	68.00 ± 12.20
	Control	68.40 ± 5.36	81.13 ± 7.01
Heart Rate (HR) (bpm)	Online	76.43 ± 13.90	59.27 ± 12.21*
	Control	80.00 ± 8.60	78.88 ± 14.11*

Table 3 and Figure 1 displays the baseline and after 2 months of neurological brain signals for both Groups. There were no significant differences in the beta wave and the alpha wave ranges, as well as cognitive performance (the ratio of focus and relaxation). However, it is worth noting that both the beta waves and the alpha waves appeared to increase in the participants in the Online Group.

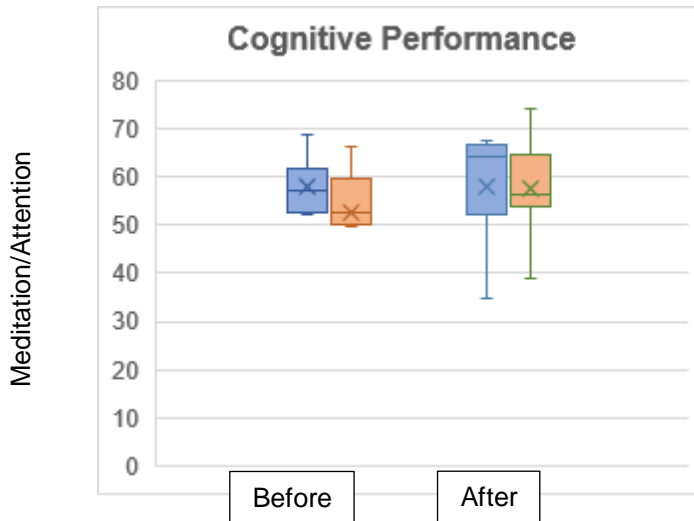
Table 3. Neurological Brain Signals of the Online Sport Counseling Group (n = 7) and the Control Group (n = 8).

Variables	Group	Baseline	After 2 Months
Beta Wave (voltage)	Online	.27971 ± .29539	.30218 ± .12518
	Control	.58390 ± .64190	.37491 ± .20942
Alpha Wave (voltage)	Online	.36071 ± .38000	.47365 ± .18060
	Control	.68773 ± .64267	.45990 ± .20385
Cognitive Performance	Online	58.21 ± 5.70	58.22 ± 11.98
	Control	52.71 ± 3.50	57.79 ± 10.13

Figure 1. Average Beta Wave Signal, Alpha Wave Signal, and Cognitive Performance of Both Groups Before and After the 2-Month Period.



C)



DISCUSSION

The purpose of this study was to assess the impact of a 2-month online sport counseling program on cognitive reappraisal skills, blood pressure, heart rate, and neurological brain signals in adolescent taekwondo athletes during 2 real match situations. The results indicated that following the counseling intervention, there were no statistically significant differences observed in cognitive reappraisal skills, alpha wave and beta wave activity, or cognitive performance. However, the athletes did experience a decrease in systolic blood pressure (SBP) and heart rate.

While cognitive reappraisal skills showed an increase after participation in the online sport counseling program, this increase did not reach statistical significance. It is possible that measuring improvements in emotion regulation using a single tool may not capture the complexity of the process, as suggested by Dryman and Heinberg (4). One limitation of this study was that all measurements were conducted during real matches, and the participants could not be burdened with additional questionnaires. Future research should consider employing multiple tools at different times that align with the athletes' schedules.

Although there were no significant differences in the alpha wave activity between the 2 Groups, there was a tendency for improvement in the Online Group. Some studies have suggested that increased alpha wave activity is associated with greater attention and relaxation (12). However, the findings of this study align with those of (16,18), indicating that cognitive reappraisal may have only a small or nonsignificant effects on physiology. Another possibility is that cognitive reappraisal may be less effective in intense situations, such as those faced by the participants at the national level matches (16).

Zysberg and Raz (22) reported that a lower blood pressure and a lower heart rate are indicative of better emotion regulation skills and reduced stress. Some support for this idea comes from Ponte Marquez et al. (14) that suggest mindfulness training helps to reduce SBP, and counseling interventions have the potential to improve it. In this study, the online counseling

sessions included relaxation and emotional awareness components that may have contributed to the observed improvement in SBP.

Limitations and Suggestions for Future Research

This study has several limitations. First, the athletes' expectations in real match situations after the COVID-19 pandemic can vary widely, and these expectations can significantly influence their emotions. Unfortunately, the researchers cannot control these individual differences. Secondly, all online counseling sessions were conducted under COVID-19 regulations, which may not be representative of other circumstances. For future research, the following should be considered:

1. Since the results indicated no significant differences between the 2 Groups, it would be advisable to explore hybrid counseling approaches with adolescent athletes.
2. To address individual differences, researchers may consider incorporating qualitative data collection methods to better understand the athletes' specific needs, the importance of events to them, and the skills they acquire from counseling sessions.
3. Recognizing that practice is crucial for skill improvement, future research studies could ask athletes to record their practice time, and extending the duration of practice over more weeks may also prove beneficial for them.

CONCLUSIONS

While the online sport counseling did not yield statistically significant improvements in cognitive reappraisal skills, it is premature to conclude that the intervention is entirely ineffective. This result can be interpreted in several ways in psychology research, that is, (a) the treatment could genuinely be effective, but we may have selected an inappropriate primary outcome measure; (b) the treatment might indeed be ineffective, and any changes in systolic blood pressure (SBP) and heart rate (HR) could have occurred by chance; and (c) the online sport counseling may be effective for certain outcomes while ineffective for others. Hence, there is room for further research to determine the correct interpretation. Future studies with larger participant samples and counseling delivered through various platforms, such as hybrid approaches are recommended for the next step in this area of investigation.

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