UMEÅ UNIVERSITET

EFFECTS OF DIFFERENT LEADERSHIP STYLES ON PERFORMANCE AND STATE ANXIETY IN FOOTBALL PLAYERS

Arman Hajireza

Bachelor thesis, 15 ECTS
Bachelor’s degree in psychology, 180 ECTS
Spring term 2023
Supervisor: Marius Sommer

I would like to thank Marius Sommer for guiding me with tasks related to the thesis work. I am also grateful for the accommodating efforts of Stefan Dahlberg during the data collection as well as each participant for giving me their time and participating in the study.

Lastly, the biggest note of appreciation will go to my parents who have supported me with the decisions I have made in my life and provided me with a framework that made this possible to achieve.

Abstract

The present experimental study aimed to investigate the effect of a controlling leadership style, in contrast to an autonomy supportive leadership style on performance and state anxiety in student football players. The sample consisted of 35 participants, 25 men and 10 women, between 16 to 20 years. The experiment had an interventional effect with pre and post measurements. There were two intervention groups and one control group. The intervention groups consisted of a controlling leadership group and an autonomy supportive leadership group. Pre- and post-test performance was measured by means of four different football skill exercises with binary outcomes. There were four exercises and three measured trials which gave a maximum points total of 12 points in the exercises. State anxiety was measured by means of the Competitive State Anxiety Inventory-2 Revised. CSAI-2R is a self-report scale which aims to explore three dimensions of anxiety: Cognitive anxiety (CA), somatic anxiety (SA), self- confidence (SC). Each participant filled in this scale after they completed the four football exercises. No statistically significant pre- to post-test changes in CA, SA, SC or football performance, as an effect of leadership style, was found. However, players in the controlling leadership condition showed significantly higher levels of SA and lower levels of SC in comparison to the control group at post-test.

Keywords: Controlling leadership, autonomy supportive leadership, SDT theory, self-confidence, cognitive anxiety, somatic anxiety

Sammanfattning

Föreliggande experimentella studie syftade på att undersöka effekten av två olika ledarstilar i studentfotbollsspelare. Urvalet i studien bestod av 35 deltagare, 25 män och 10 kvinnor. Åldersspannet i deltagarna var 16 till 20 år. Experimentet hade en interventionseffekt med en förmätning och en eftermätning. Det var två ledarstilar som användes i studien, den ena var en kontrollerande ledarstil medan den andra var en autonomi stödjande ledarstil. I studien var det två interventionsgrupper och en kontrollgrupp, den ena interventionsgruppen var kontrollerade ledarskapsgruppen och den andra autonomi stödjande ledarstil gruppen. Effekten som vardera ledarstil har var studerad utifrån prestation och känslan av ängslighet i en viss moment. Prestation mättes med hjälp av fyra styckena precisionsövningar som gav binära resultat. Det var fyra stycken fotbollsövningar och tre uppmätande försök, vilket skulle ge ett max poäng antal på 12 poäng. Tillståndsängslighet mättes med hjälp av Competitive State Anxiety Invetory-2 Revised. CSAI-2R är en självskattningsskala som utforskar tre dimensioner av ängslighet: Kognitivängslighet (CA), somatiskängslighet (SA) och självförtroende (SC). I slutet av passen när alla övningarna hade utförts, fick varje deltagare svara på CSAI-2R. Det var inga signifikanta skillnader pre till posttest i prestation eller nivå av ängslighet, som effekt av ledarskapsstilar, som hittades. Däremot hittades det en mellangruppsskillnad som var statistiskt signifikant mellan den kontrollerande ledarskapsstil gruppen och kontroll gruppen för både somatisk ängslighet och självförtroende.

Nyckelord: Kontrollerande ledarskap, autonomi stödjande ledarskap, SDT teorin, självförtroende, kognitiv ängslighet, somatisk ängslighet

Effects of Different Leadership Styles on Performance and State Anxiety in Football Players

Leadership is critical for all effectively winning sports teams, with coaches and players serving as the primary leaders who can have an influence on athlete performance in training and match scenarios (Côté et al., 1995; Gould & Volker, 2010; Fransen et al., 2014). Leadership styles can have a significant impact on athlete outcomes, with some styles being empirically demonstrated as more effective than others (Gould, 2016). Understanding how different leadership styles can have an impact on the physical and mental performance of athletes is crucial for coaches to understand as they are seeking to optimize the performance of each individual in their team.

Autonomy supportive vs Controlling leadership

One leadership style in focus for recent research within sports is the autonomy supportive coaching style. This coaching style can be defined as a style that emphasizes the importance of autonomy, competence and relatedness in promoting the motivation and performance of athletes (Reinboth et al., 2004; Balaguer at al. 2018). This approach recognizes the perspective of the athlete and their need for autonomy and support to develop self-determination and to achieve better performance outcomes (Deci & Ryan, 2008). Coaches that convey an autonomy supportive style provide athletes with choices, offer rationales for the importance of specific goals, and provide support to help athletes achieve their goals (Bartholomew et al., 2011). Research indicates an autonomy supportive coaching style can positively impact athlete outcomes. For example, research has indicated that athletes who perceive their coaches as autonomy supportive tend to have higher levels of intrinsic motivation, self-determination, and satisfaction, as well as better performance outcomes (Reinboth et al., 2004; Balaguer et al., 2018; Ntoumanis & Standage, 2009; Mageau & Vallerand, 2003). Moreover, findings suggest that an autonomy supportive leadership style can lead to positive psychological outcomes for athletes. Studies show that athletes who perceive their coaches as having an autonomy supportive style tend to experience lower levels of anxiety, and higher levels of confidence and self-esteem (Standage et al., 2006). An autonomy supportive coaching style can also enhance the mental toughness of athletes. This relates to increasing their ability to maintain focus, motivation, and determination under pressure. Furthermore, it has been demonstrated that athletes who perceive their coaches as autonomy supportive tend to possess higher levels of mental toughness. This can improve their ability to handle setbacks and help in maximizing performance levels (Nicholls et al., 2016; Gaudreau & Antl, 2008; Lee et al., 2018; Gustafsson & Skog, 2012).

Another leadership style in focus for recent research is controlling leadership. A controlling leadership style from a coaches perspective can be defined as behaving in a coercive, pressuring, and authoritarian way to impose a specific way of thinking and behavior from athletes according to Bartholomew et al. (2009). The behaviors of a controlling leadership styles involve a coach who promotes ego involvement, controlling feedback, feedback conveying external pressure as well as contingent rewards and punishments according to Bartholomew et al. (2009). The author explains that ego involvement can be recognized when the coach employs strategies with the purpose of leading the athletes to view their self-worth as contingent on demonstrating superiority against their teammates. An example of how to create this behavior can be creating competition between the athletes in a squad, creating comparisons between players or only using successful actions as a measure of progress. Controlling feedback according to the author can be recognized when the coach is being over critical in the feedback to anger the athlete into improving their performance. An example of this behavior is when the coach picks up on every negative detail of the performance of an athlete, while ignoring the positive aspects and failing to offer any suggestions for improvement. Feedback that conveys external pressure focuses on using language such as “should” or “must” and is recognized as controlling communication according to Ryan (1981). Contingent rewards and punishments are common behaviors with a controlling leadership, an example of a punishment can be telling the athlete to do a set amount of pushups each time they fail to make a successful action.

Leadership and motivation

The self-determination theory proposes that there are different types of motivation that can drive behavior, and that people are more likely to be motivated and engaged when their basic psychological needs for autonomy, competence, and relatedness are met (Deci & Ryan, 2008; Ryan & Deci, 2017). In the context of leadership, a controlling leadership style can undermine these basic needs and lead to demotivation and disengagement in a group (Deci et al., 1989; Deci & Ryan, 2012). Further research on SDT and leadership suggests that a controlling leadership style can have negative effects such as decreased satisfaction, lower levels of engagement and commitment. For example, a meta-analysis conducted by Gagné and Deci (2005) found that controlling leadership behaviors are negatively related to intrinsic motivation and related positive outcomes. Similarly, Van den Broeck et al. (2008) found that an autonomy supportive leadership style is positively related to need satisfaction and engagement, while controlling leadership is negatively related. Leaders who support the autonomy, competence and relatedness of their followers are more likely to foster intrinsic motivation and positive outcomes for their teams. Deci et al. (2017) emphasized the importance of supporting autonomy, competence, and relatedness in promoting engagement and well-being in the workplace and highlighted the negative impact of controlling leadership behaviors on these basic needs. Taken together, these sources provide evidence for the negative impact that a controlling leadership can have on basic psychological needs and motivation of people. Furthermore, the research highlights the importance of supporting autonomy, competence, and relatedness in promoting positive outcomes in the workplace, which was done by contrasting the leadership styles with each other.

Leadership and anxiety

Another key topic of interest is how a coaches leadership style can affect the feeling of state anxiety in athletes. According to Spielberger (1972), state anxiety can be defined as “a temporary emotional state characterized by feelings of apprehension, tension, and nervousness”. This feeling is considered a common experience for athletes and there has been plenty of research corroborating that it can have a negative impact on the performance of an athlete (Hanton et al., 2005; Woodman & Hardy, 2003; Mellalieu et al., 2009; Hardy et al., 2018). From a performance perspective, Hanton et al. (2005) found that higher state anxiety in athletes will lead to the athlete being more prone to make unforced errors in game situations while Woodman and Hardy (2003) found that athletes experience worse precision and accuracy in their gameplay when they have higher state anxiety. Higher levels of state anxiety can also have effects from a cognitive and physiological perspective. According to Hardy et al. (2018), higher state anxiety can lead to the athlete experiencing distracting thoughts, decreased concentration, and engaging in negative self-talk, all of which can interfere with the focus of the athlete. Mellalieu (2009) explains that feelings of increased state anxiety are correlated with increased muscle tension which can affect coordination and accuracy. The author continues to explain that higher state anxiety levels can contribute to an elevated heart rate for the athlete which can lead to reduced blood flow to the brain, and thereby affect the cognitive function and decision-making ability of the athlete.

It has been demonstrated in research that the type of leadership style that a coach has can affect the emotional state of an athlete (Gonzalez-Garcia et al., 2021). Moreover, there has been research conducted previously to deduce a relationship between leadership styles and anxiety in athletes (Bum & Shin, 2015; Hu et al, 2023; Bum, 2013; Ramis et al., 2017). The findings in Bum and Shin (2015) and Bum (2013) show that leadership styles and state anxiety are correlated, and that the two factors can have an effect on performance levels in athletes. The studies indicated that there is a negative correlation between state anxiety and performance, in other words, when one of the variables increases, the other one decreases. Hu et al. (2023) found that a controlling coaching style can have a negative impact on the motivation and well-being of athletes. In this study, athletes who experienced a leader with controlling behaviors were less likely to feel autonomous, competent, and related to others. This in turn led to the athlete feeling reduced motivation and commitment to the sport and increased the fear of failure, thus demonstrating the correlation between leadership styles and state anxiety.

As evidenced, there has been a lot of research on how leadership styles can affect the motivation and well-being of an athlete. From these findings, it can then be hypothesized that the performance of an athlete may be affected by the leadership style at hand. However, there is limited research investigating and comparing in the field how different leadership styles affect performance, which in turn is what the purpose of the present study is. In detail, there is as of today limited investigations with focus on experimentally conducted tests where the effect of leadership styles effect can be studied in a sporting context. Additionally, there is limited research in the specific context of football focusing on how the state anxiety of football players can be affected by leadership styles from a coach which this study will also convey.

Thus, the aim of this study is to examine how two different leadership styles can affect the performance and mental state of football players. The two different leadership styles will be contrasting with one being a controlling leadership style and the other one being an autonomy supportive leadership style. This study is conducted within the frame of state anxiety where it will be examined how the different leadership styles affect the athlete from that perspective. The hypothesis for this investigation is that the players encountering a controlling leadership style will experience an increase in state anxiety (Ramis et al., 2017; Hu et al., 2023), and a decrease in performance (Bum & Shin, 2015; Bum, 2013, Jones & Hardy, 1990). It is further hypothesized that the group encountering an autonomy supportive leadership style will experience an increase in well-being and intrinsic motivation (Deci & Ryan, 2008; Weinstein et al., 2013; Van den Broeck et al., 2008). This will lead to a drop in state anxiety levels. The autonomy supportive group is also expected to produce an increase in performance levels (Mageau & Vallerand, 2003; Wang et al, 2002; Liukkonen, 2010).

Method

Participants

The participants in the experiment are high school student athletes between the ages of 16 and 20 years old (Age, M =16.97, SD=0.82). Originally 43 participants were recruited for the study, but eight people dropped out for different reasons. This left the sample with 35 participants, consisting of 25 (71%) men and 10 (29%) women.

All the participants in the study have experience of playing football as they are either still actively playing football at club level or played football in the past. The participants were mostly recruited from a group of athletic high school students (n=26) as well as a group of high school students who were undertaking a footballing course through their school (n= 9).

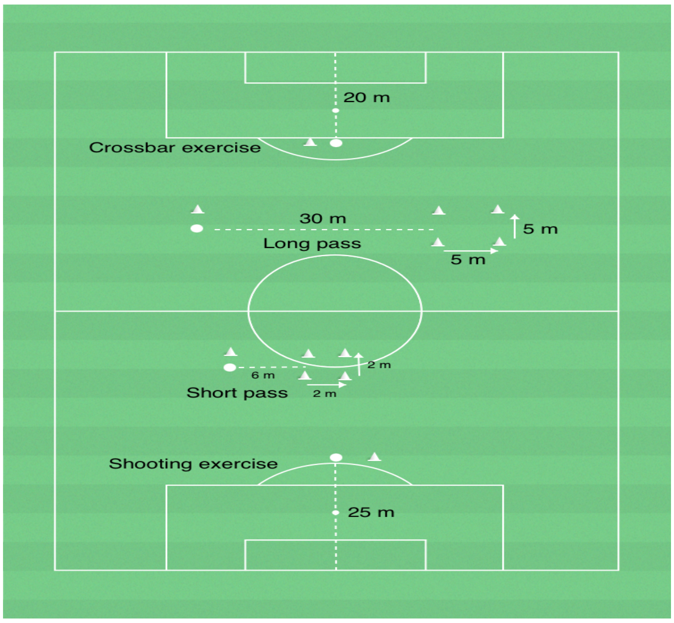
Instrument and materials

Football skills tests

Football skills were assessed by means of four different football drills: A short passing exercise, a long passing exercise, a crossbar challenge as well as a shooting drill (Figure 1). The types of exercises chosen were precision drills with a binary outcome, meaning a successful attempt would give 1 point, and a failed attempt would give 0 points. The short passing exercise was set up in a way that the player stands six meters away from a 2x2 meter box and the ball had to stop within that box. If the ball stopped outside the box, then that would be a failed trial. In the long passing exercise, the player was stood 30 meters away from the box, the ball had to be still, and the player had to hit a 5x5 meter box in the first bounce that the ball makes with the grass. If the first bounce of the ball is outside the 5x5 meter box, then that is identified as a failed attempt. The crossbar challenge was set up in a way where the player had to stand 20 meters away from the goal, the ball had to be still. For it to constitute a successful trial, the ball had to hit the crossbar, not hitting the crossbar would constitute a failed attempt from the player. The last exercise was a shooting drill which required each player to stand 25 meters away from goal. The player had to roll the ball to get the ball out of their feet before the shot, thereafter they would shoot their shot. The reason the player rolls the ball is because the exercise should resemble a shooting situation and not a free kick situation which it would resemble if the ball was still. The trial would only be constituted as successful if the first bounce the ball made with the grass was after the ball had passed the goal line, otherwise it would be a failed trial. It was crucial with the setup of the exercises, to create equal conditions for each participant which would eliminate the likelihood of certain participants receiving an unfair advantage.

Figure 1

Football drills set up; An illustration of how a football field could look with the four exercises



Note. The dotted lines and arrows represent the distances, and the white dot represents the ball.

Each participant received one warm up trial where they could test out a technique or idea they might have had in terms of execution of the exercise, followed by three assessed trials. As previously explained, there were clear parameters laid out for each exercise regarding what makes a successful trial in contrast to what makes a failed trial which was explained clearly to each participant. The performance of the players was assessed by registering the number of successful attempts that the subject had in their session. For example, if a participant had seven successful attempts in total for the four drills, that would constitute a final score of seven points. For the four exercises and 12 measured trials, the maximum amount of points a subject could achieve was 12 points.

Assessment of Anxiety

To assess participants state anxiety the Competitive State Anxiety Invetory-2 Revised was used (Cox et al., 2003). Previous studies such as Cox et al. (2003) have shown CSAI-2R to have good internal consistency and validity. CSAI-2R is a self-report scale that measures three different dimensions of anxiety; cognitive anxiety (CA), somatic anxiety (SA), and self-confidence (SC). There were five statements measuring cognitive anxiety (i.e., I was concerned that I will not be able to perform as well as I can), seven statements measuring somatic anxiety (i.e., my body felt tense) and five statements measuring self-confidence (i.e., I was sure I would perform well). The participant were required to read each statement and respond on a Likert scale from one to four.

CSAI-2R is commonly used to measure state anxiety before a competitive event but for this study it was used to measure state anxiety both before and after the intervention (pre- and posttest). In other words, the CSAI-2R was responded to by each participant at the end of both sessions. Due to this, the verb tense in the original questions was changed to past tense in the questionnaire handed to the athletes, as they responded to the statements after they completed the footballing exercises. The statements from CSAI-2R were translated from English to Swedish as it would ease the understanding of the statements for each participant. The translations of the questions used in Elander (2010) was applied for this investigation. After the completion of the four footballing exercises, each participant received time and space to respond to the 17 statements in CSAI-2R. The athlete was also instructed to respond to each statement instinctively as it is recommended when answering the CSAI-2R scale. The Swedish version of CSAI-2R has been reviewed and evaluated (Lundqvist & Hassmén, 2005).

Intervention

In the study, there were two intervention groups and one control group. The second session for the control group was conducted with the same conditions as the first session. They received instructions before each exercise commenced but other than that, no comments were made from the study leader.

The coaching style implemented for the intervention groups was based on previous research regarding those styles. The overall structure of all the sessions were the same, with the same exercises being performed. In the start of the session, both groups had a specific goal to achieve. For the controlling leadership group, the goal was set as an order by the study leader. For the autonomy supportive group, the goal was set by the player themselves. Therefore, both groups conducted the same exercises with a goal that was set in the beginning of the session but the difference between the groups came in the feedback and comments within the session coming from the study leader.

Table 1
The concepts that were followed and the comments that were made to each player in the controlling leadership group.

Concept	Execution of concept
Contingent punishment	Each participant was forced to do multiple pushups every time an attempt was missed.
Excessive personal control from the coach	Ignoring the perspective of the participant while giving them an order that they must reach an unreasonably high point total in the beginning of the session.
Controlling feedback	Reminding the player multiple times that they are not in line with the high goal that was set in the beginning of the session, after missed trials to shame them and in turn anger them to increase their performance level. Shaming the player by telling them that their result in the first session was lower than the average score.
Feedback conveying external pressure	Reminding the participant of their results from the first session and telling them that you expect a higher point total this time. Reminding the player that they must accomplish the next attempt to stay in line with achieving the high goal that was set in the beginning of the session.
Promoting ego involvement	Creating comparisons and competition between the participant and others who have participated in the study. Which was done by emphasizing the point total multiple times.

Table 2
The concepts that were followed and the comments that were made to each player in the autonomy supportive leadership group.

Concept	Execution of concept
Giving the player freedom where they can make choices	The point total goal that is set in the beginning of the session is set by the player.
Consistent and positive feedback throughout session	Even if the player misses attempts, they still get encouraged to go again for the next trial.
	When the player executes the technique in the same way that they explained they should, then they receive praise.
Avoiding controlling behaviors	Avoiding critiquing actions that the player does. Instead focusing on improvement points.
	No punishment for this group.
Giving the athlete chances to think for themselves	There were frequent discussions about improvement points in the exercises between trials and those discussions were based around the thoughts of the player.
Avoiding ego involvement	Creating no comparisons between other participants and focusing on only the player that is doing the exercises in the moment.

Procedure

This study had an experimental design with a baseline measurement, intervention and follow up measurement. Thus, all participants first conducted a baseline measurement under equal conditions. In the first session, each subject received instructions on how to perform the exercises, what constitutes a successful or failed trial. The only comments that came from the study leader in the first occasion was only to give confirmation whether a trial was successful or failed.

After the participants conducted the baseline session, they were randomly divided into three groups. Group 1 (N=12, Age, M=16.8, SD=1.19) was recognized as the controlling leadership group, group 2 (N=11, Age, M=17, SD=0.63) was the autonomy supportive leadership group, and group 3 (N=12, Age, M=17.1, SD=0.51) was the control group that would repeat the original session for a second time. The controlling leadership group would repeat the same exercises, but on this occasion, they were met by a coach who would convey behaviors that go in line with a controlling leadership style. On this occasion, the player would often be required to stop after each trial and there would be a discussion between the study leader and the player. The comments and behaviors in this group were based on promoting ego involvement, controlling feedback, feedback conveying external pressure, and contingent punishment (see Table 1).

A similar setup was applied for the autonomy supportive group, they would repeat the same exercises that was done once before, but the difference in their session was that the study leader would convey behaviors that go in line with an autonomy supportive leadership style in moments of dialogue with the player. These behaviors were based on giving the player freedom to make their own choices, keeping a dialogue with the player when discussing improvement points, consistently positive feedback as well as avoiding controlling behaviors such as promoting ego involvement and punishing the player (see Table 2).

The control group had a different setup compared to the two intervention groups. They would repeat the same session they did in the baseline trial, but this time there was no discussion between the player and the study leader. The control group was used as a gauge of how much improvement or regression can be expected in the second session compared to the first one for each participant. After the baseline and the second session, there was a follow up measurement which was the CSAI-2R questionnaire which each participant responded to.

In each session, a test leader was present. The test leader's role was to instruct the footballing exercises and to act out the different types of leadership (controlling- and autonomy supportive leadership) within the two intervention groups. The test leader was the author of the present study, a licensed football coach and well familiar with the different coaching behaviors within the two conditions (controlling – and autonomy supportive leadership). The test leader had at the time of the study little to no familiarity with the participants. Each session in the experiment was conducted on a grass pitch in an indoor footballing hall. The study leader had access to half of the football pitch in a training session where the stations for the four footballing exercises were set up. Each student was called in one by one when they conducted their sessions. There was a good distance between the stations and the rest of the group which means that the probability of the other students hearing anything being said in the sessions were low.

Data analysis

Statistical analyses were performed using Jamovi version 2.3.16. The sample was checked for sufficient normal distribution, linearity, outliers, homogeneity of variance and covariance. Mixed between-within subjects analyses of variance (repeated measures ANOVAs) were performed with leadership style (controlling leadership, autonomy supportive leadership and control group) as the independent variable, and pre- and post-assessment of the dependent variables (cognitive anxiety, somatic anxiety, self-confidence, and football points) representing the within-subject repeated measures. Effect sizes are reported as partial eta squared (partial $\eta 2$) with the following interpretation: 0.01 = small, 0.06 = medium and 0.14 = large (Cohen, 1988).

Ethical considerations

Each participant in the study was at first informed of their rights before their participation commenced. These rights related to the participant being treated with anonymity and confidentiality. Furthermore, the participants were briefed about the purpose of the study, as well as GDPR considerations. Additionally, they were informed about the voluntary nature of participation as well as the possibility to withdraw from the study for whatever reason during the session. The participants in the study were also briefed that the individual data collected in the study would be held private. In other words, the data in the study would be presented on a group level which protects the individuality of each participant. One of the comments made to the participants in the controlling leadership group involved deception by telling them that their score in the first session was lower than the average score. The participants were debriefed about this information when the data collection process was over.

Results

The descriptive data for the assessments is shown in table 3.

Table 3

Mean and Standard deviations of the dependent variables as a function group

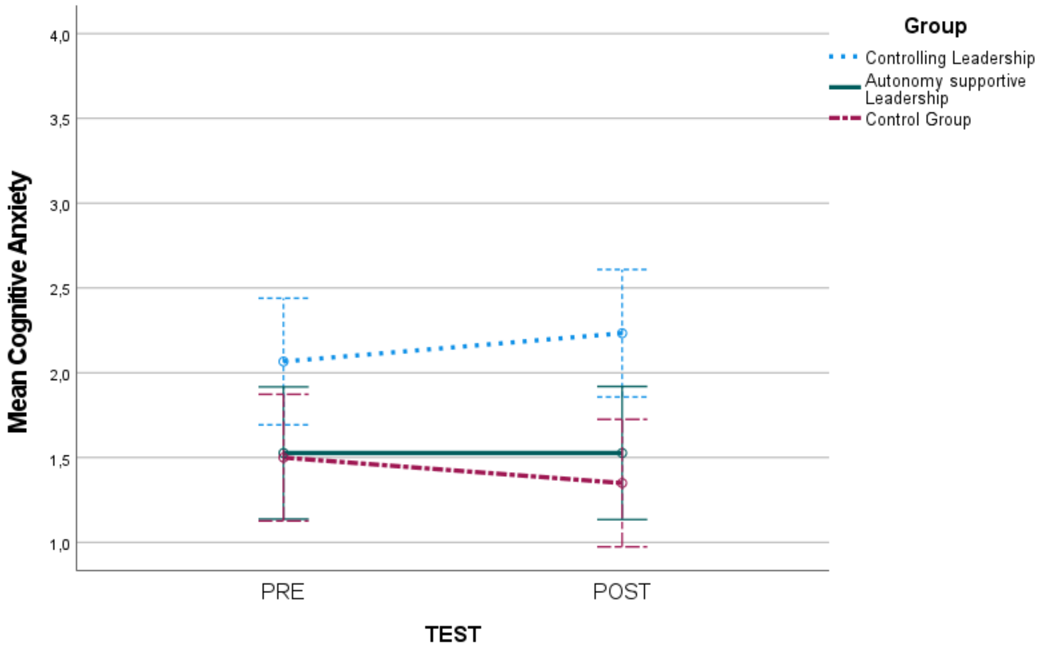
	Leadership Style	Pre		Post	
		Mean	*SD*	*Mean*	*SD*
Cognitive Anxiety	Controlling Leadership	2.07	0.78	2.23	0.89
	Autonomy Supportive	1.53	0.48	1.31	0.33
	Control Group	1.50	0.60	1.35	0.37
Somatic Anxiety	Controlling Leadership	1.78	0.72	1.88*	0.59
	Autonomy Supportive	1.31	0.33	1.35	0.36
	Control Group	1.48	0.41	1.33*	0.27
Self-Confidence	Controlling Leadership	2.40	0.89	2.08*	0.89
	Autonomy Supportive	2.53	0.63	2.73	0.71
	Control Group	2.70	0.85	3.10*	0.67
Football Points	Controlling Leadership	4.33	1.77	4.25	1.36
	Autonomy Supportive	4.36	1.86	5.64	1.43
	Control Group	4.92	1.88	5.33	2.10

**=Between-group difference,* $p < 0.05$

For cognitive anxiety (CA) the mixed between-within subjects analyses of variance (ANOVA) revealed a significant main effect of group ($F(1,32)=5.23$, $p=0.011$, partial $\eta 2=0.25$) but no significant main effect of test ($F(1,32)=0.005$, $p < 0.05$, or group x test interaction ($F(2,32)=1.37$, $p=0.27$). Scheffe corrected follow-up analysis showed a significant difference on the post-test between the controlling leadership group and the control group ($p=0.021$). To control for the effect of potential between group differences in pre-test scores an ANCOVA with post-test as dependent variable, group as independent variable and pre-test score on CA as a covariate was conducted. Controlling for the groups pre-test scores the ANCOVA yielded a non-significant difference between groups at post-test ($F(2,31)=2.93$, $p=0.068$, np2=0.16).

Figure 2

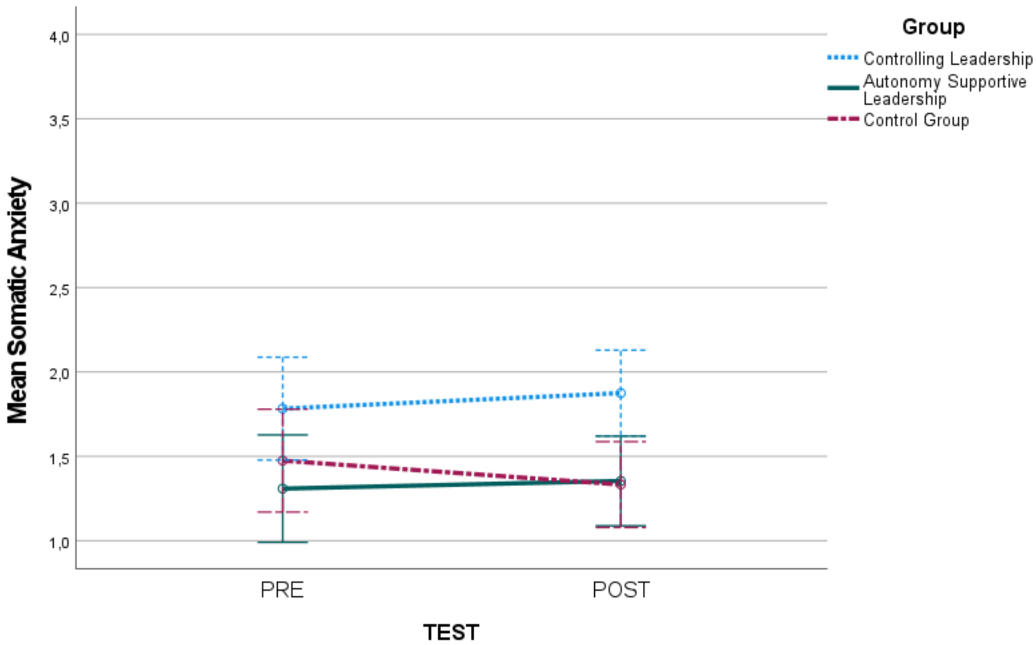
Mean value difference of cognitive anxiety pre and posttest in the three groups



For somatic anxiety (SA) the mixed between-within subjects analyses of variance (ANOVA) revealed a significant main effect of group ($F(1,32)=5.77$, $p=0.007$, partial $\eta2=0.27$) but no significant main effect of test ($F(1,32)=0.025$, $p < 0.05$, or group x test interaction ($F(2,32)=0.57$, $p < 0.05$). Scheffe corrected follow-up analysis showed a significant difference on the post-test between the controlling leadership group and the control group ($p=0.045$).

Figure 3

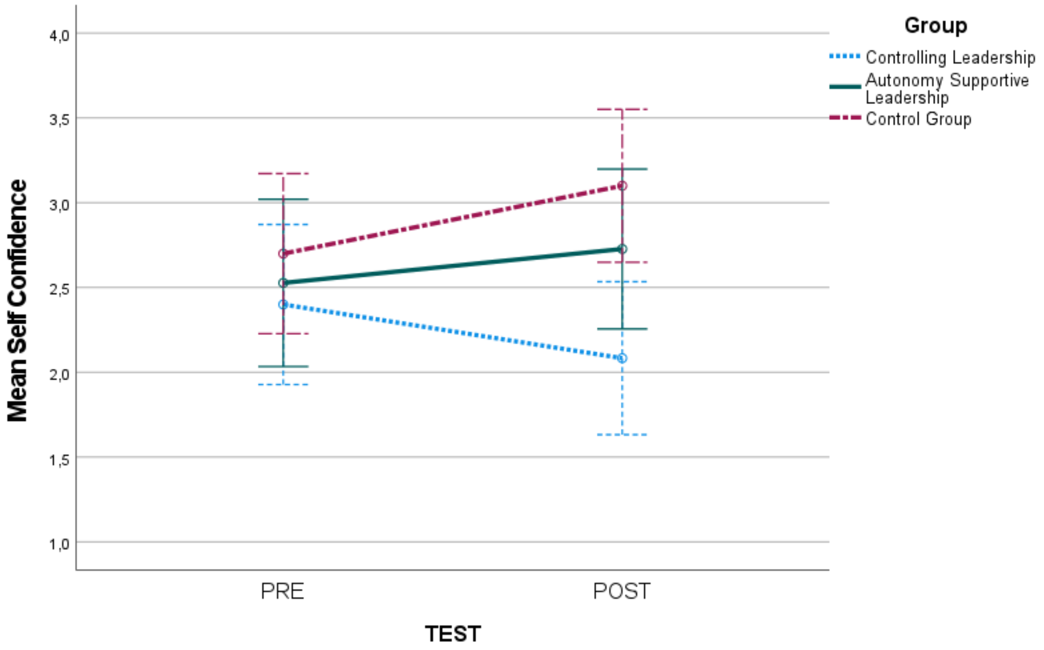
Mean value difference of somatic anxiety pre and posttest in the three groups



For self-confidence (SC) the mixed between-within subjects analyses of variance (ANOVA) revealed no significant main effect of group ($F(2, 32)=2.45$, $p < 0.05$) or test ($F(1, 32)=0.96$, $p < 0.05$), but a significant group x test interaction ($F(2, 32)=5.01$, $p=0.013$. Scheffe corrected follow-up analysis showed a significant difference on the post-test between the controlling leadership group and the control group ($p=0.03$).

Figure 4

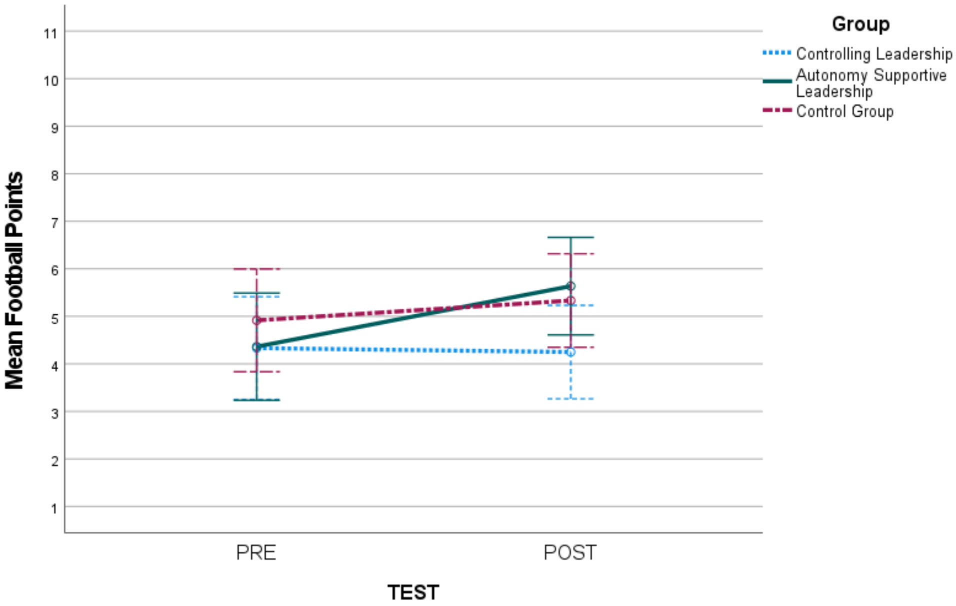
Mean value difference of self-confidence pre and posttest in the three groups



For football points (FP) the mixed between-within subjects analyses of variance (ANOVA) revealed no significant main effect of group ($F(2, 32)=1.08$, $p < 0.05$) or test ($F(1, 32)=2.91$, $p < 0.05$), nor any significant group x test interaction ($F(2, 32)=1.56$, $p < 0.05$).

Figure 5

Mean value difference in footballing points pre and posttest in the three groups



Discussion

The aim of the present study was to examine how different leadership styles can affect performance and state anxiety in young football players. In summary no statistically significant pre- to post-test changes in performance or level of state anxiety, as an effect of leadership style, was found.

A relevant finding was that the autonomy supportive leadership style group showed an increase in football skill performance from 4.4 to 5.6 points, whereas the two other groups did not show a similar increase in performance. Although this change was not statistically significant, it could be argued that the increase is a practically important effect for a football player. Given that the observed change in football skill performance is interpreted as having a practical importance or effect. This aligns with the hypothesis that there would be an increase in performance within the autonomy supportive leadership group and would also be in line with previous research reporting positive effects of autonomy support on performance outcomes (Mageau & Vallerand, 2003; Reinboth et al., 2004). The observed, non-statistically significant change in performance within the autonomy supportive group could either be due to chance, or to the fact that the coaching style supports the autonomy of the individual as a fundamental psychological need which lead to greater intrinsic motivation and self-determination (Ryan & Deci, 2008). A coach who is autonomy supportive is able to foster a sense of control and ownership in the athlete (Reinboth et al., 2004,). This ownership and sense of control can allow the athlete to feel more engaged and invested in the training process (Standage et al., 2003). This can induce greater effort and focus on exercises like the one conducted in this study. Another possible explanation for the lack of statistically significant effects of autonomy supportive leadership effects on football skills performance is floor effects. More specifically, the drills were possibly too difficult to execute for the participants, thus any possible effects of the leadership style may have fallen short.

Another interesting result was that the autonomy supportive coaching style had minimal effect on the participants experienced cognitive anxiety, somatic anxiety and self-confidence. This does not align with the hypothesis stated in the introduction, nor does it align with previous research which has indicated that autonomy supportive leadership promotes psychological states in individuals (Sarmah et al., 2022; Deci et al., 2017). One possible reason the findings in the present study do not align with previous research can have to do with the length of the intervention sessions. There is only so much you can do in a 15-minute session, and even though all of the behaviors conveyed in the sessions were accurate with the coaching style and supported by research, the length of the sessions may have been too short for the participants to be affected by the respective coaching style. Also, bringing up the point total in the beginning of the session might have contributed to the anxiety of the athlete. Even though the athlete chose the goal they set for themselves and that goal was never brought up again by the study leader, it still could have contributed to the athlete feeling an increased sense of pressure which affected their perceived anxiety levels.

In regard to the controlling leadership group, some interesting findings were found. Though no statistically significant pre to posttest changes were observed, the results displayed a certain decrease in self-confidence for the controlling leadership group, but not for the autonomy supportive- or the control group. Although not statistically significant, this tendency aligns with current research showing that a controlling coaching style has detrimental effects on the motivation, well-being, and performance of athletes. Research has indicated that a controlling coaching style can lead to decreased intrinsic motivation, increased anxiety, and lower levels of well-being among athletes (Bartholomew et al., 2011; González-Cutre et al., 2015, Sarmah et al, 2022).

To sum up, there are tendencies within the controlling leadership group showing somatic and cognitive anxiety to increase, and self-confidence to decrease. These findings are however not statistically significant and may, as with the autonomy supportive group, be due to a question of time being exposed to the leadership style. Fifteen minutes was likely to be insufficient for the participants to experience any significant effects of the coaching style. For further studies that want to explore this topic, the coaching style should preferably be implemented during a longer time frame. However, with this study, such a design was unfeasible due to a lack of time and resources.

Although not a part of the official test protocol, as the test leader, a personal reflection from the post-test related to the controlling leadership group is that some participants behaved differently compared to participants in the other groups. During failed trials, some participants were noticeably more disappointed, openly showing frustration, and also telling themselves that they have to succeed in the next trial to increase their total score. These unofficial observations must be interpreted with caution as the test leader might be biased by means of expected effects of the controlling leadership style.

There are improvement points with the study which have not been mentioned thus far. One limitation is the self-reporting nature of CSAI-2R. Although, the CSAI-2R is a widely used and validated measure of competitive anxiety in sport and has been shown to have good reliability and validity in various studies (Cox et al., 2003, Martens et al., 1990). As a questionnaire, the CSAI-2R relies on self-report data, which can be subject to response bias as well as social desirability bias. Paulhus (1991) demonstrated that response bias and social desirability bias can significantly influence self-report data. Participants may be motivated to present themselves in a favorable manner, leading to inflated or distorted responses. In the context of athletic performance, athletes may feel compelled to report lower anxiety levels to align with the expectation of mental toughness and confidence (Woodman & Hardy, 2003). Therefore, this might be a limitation with the study that might have affected the results as the feeling of anxiety that the athlete is perceived to have is taken from their response on the CSAI-2R in this study. An improvement point for further research can be to add a metric to the study which is not self-reported such as a physiological measurement. In that case, you would have two measurements which you could base your analysis of the perceived anxiety of the participants.

Another limitation of the study was that each session was conducted on the same pitch as other people in the same training group as the participant. Even though there was a large distance between the experiment area and the other players, also the rest of training group was having their regular session in the meantime, this still could have caused a distraction for some participants.

The final limitation is the sample size of the study. Having a small sample size causes concern for many reasons. One of the main concerns is that a small sample size compromises the ability to detect statistically significant findings (Button et al, 2013). It also increases the risk for type 1 and type 2 errors to occur, which can lead to misleading conclusions being drawn (Sekaran & Bougie, 2016). Another risk a small sample size brings is limited generalizability and potentially less representative results being able to be drawn from the results. Therefore, for future research, it is recommended have a larger a sample size which will allow for better representation of the population, thereby increasing the likelihood of obtaining findings that can be generalized to a broader context (Krejcie & Morgan, 1970).

In conclusion, it is important for coaches to understand the impact that leadership styles can have on the athletes they are coaching. Different coaching styles may be more or less effective depending on factors such as the individual characteristics of the athlete, the culture of the team, competitive level, and situational demands (Cushion et al., 2012). Future research should explore these contextual factors to gain a more nuanced understanding of the conditions under which leadership style maximize performance outcomes.

References

Balaguer, I., Castillo, I., Cuevas, R., & Atienza, F. (2018). The importance of coaches' autonomy support in the leisure experience and well-being of young footballers. *Frontiers in psychology*, 9, 840.

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-determination theory and diminished functioning: The role of interpersonal control and psychological need thwarting. *Personality and Social Psychology Bulletin*, 37(11), 1459-1473.

Bum, C. (2013). *The effect of golf coaches' leadership styles on junior athletes' competitive state anxiety and performance in South Korea*. The University of New Mexico.

Bum, C. H., & Shin, S. H. (2015). The relationships between coaches' leadership styles, competitive state anxiety, and golf performance in Korean junior golfers. *Sport Science Review*, 24(5-6), 371.

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: why small sample size undermines the reliability of neuroscience. *Nature reviews neuroscience*, 14(5), 365-376.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Côté, J., Salmela, J. H., Trudel, P., Baria, A., & Russell, S. J. (1995). The coaching model: A grounded assessment of expert gymnastic coaches' knowledge. *Journal of Sport and Exercise Psychology*, 17(1), 1-17.

Cox, R. H., Martens, M. P., & Russell, W. D. (2003). Measuring anxiety in athletics: the revised competitive state anxiety inventory–2. *Journal of sport and exercise psychology*, 25(4), 519-533.

Cushion, C., Harvey, S., Muir, B., & Nelson, L. (2012). Developing the Coach Analysis and Intervention System (CAIS): Establishing validity and reliability of a computerised systematic observation instrument. *Journal of sports sciences*, 30(2), 201-216.

Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. *Journal of applied psychology*, 74(4), 580.

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *Annual review of organizational psychology and organizational behavior*, 4, 19-43.

Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian psychology/Psychologie canadienne*, 49(1), 14.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian psychology/Psychologie canadienne*, 49(3), 182.

Deci, E. L., & Ryan, R. M. (2012). *Motivation, personality, and development within embedded social contexts: an overview of self-determination theory*.

Fransen, K., Boen, F., Vanbeselaere, N., De Cuyper, B., & Vande Broek, G. (2014). *How a team of champions becomes a champion team*? Athlete leaders as key figures for optimal team functioning-Part 1. Western European Volleyball Zonal Association (FIVB), 1-7.

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational behavior*, 26(4), 331-362.

Gaudreau, P., & Antl, S. (2008). Athletes' broad dimensions of dispositional perfectionism: Examining changes in life satisfaction and the mediating role of sport-related motivation and coping. *Journal of Sport and Exercise Psychology*, 30(3), 356-382.

González-Cutre, D., Sicilia, Á., Sierra, A. C., Ferriz, R., & Hagger, M. S. (2015). Understanding the need for novelty from the perspective of self-determination theory. *Personality and Individual Differences*, 83, 16-23.

Gould, D. R. (2016). Leadership as a life skill in youth sports. *Positive youth development through sport*, 151-167.

Gould, D., & Voelker, D. K. (2010). Youth sport leadership development: Leveraging the sports captaincy experience. *Journal of sport psychology in action*, 1(1), 1-14.

González-García, H., Martinent, G., & Nicolas, M. (2021). Relationships between perceived coach leadership and athletes' affective states experienced during competition. *Journal of sports sciences*, 39(5), 568-575.

Gustafsson, H., & Skoog, T. (2012). Athletic identity and its relation to sport participation levels and motives among male and female middle and high school athletes. *European Physical Education Review*, 18(2), 203-216.

Hanton, S., Fletcher, D., & Coughlan, G. (2005). Stress in elite sport performers: A comparative study of competitive and organizational stressors. *Journal of sports sciences*, 23(10), 1129-1141.

Hardy, L., & Parfitt, G. (1991). A catastrophe model of anxiety and performance. *British journal of psychology*, 82(2), 163-178.

Hardy, L., Jones, G., & Gould, D. (2018). *Understanding psychological preparation for sport: Theory and practice of elite performers*. John Wiley & Sons.

Hu, Q., Li, P., Jiang, B., & Liu, B. (2023). Impact of a controlling coaching style on athletes' fear of failure: Chain mediating effects of basic psychological needs and sport commitment. *Frontiers in Psychology*, 14.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.

Lee, M. J., Whitehead, J., Ntoumanis, N., & Hatzigeorgiadis, A. (2018). Relationships among values, psychological need satisfaction, and athlete burnout: A longitudinal study. *Journal of Sport and Exercise Psychology*, 40(3), 166-177.

Liukkonen, J., Barkoukis, V., Watt, A., & Jaakkola, T. (2010). Motivational climate and students' emotional experiences and effort in physical education. *The Journal of Educational Research*, 103(5), 295-308.

Lundqvist, C., & Hassmén, P. (2005). Competitive State Anxiety Inventory-2 (CSAI-2): Evaluating the Swedish version by confirmatory factor analyses. *Journal of Sports Sciences*, 23(7), 727-736.

Mageau, G. A., & Vallerand, R. J. (2003). The coach–athlete relationship: A motivational model. *Journal of sports science*, 21(11), 883-904.

Mellalieu, S. D., Hanton, S., & Fletcher, D. (2009). *A competitive anxiety review: Recent directions in sport psychology research* (pp. 1-45). New York, NY, USA:: Nova Science Publishers.

Martens, R., Vealey, R. S., & Burton, D. (1990). *Competitive anxiety in sport*. Champaign, IL: Human Kinetics.

Nicholls, A. R., Morley, D., & Perry, J. L. (2016). Mentally tough athletes are more aware of unsupportive coaching behaviours: Perceptions of coach behaviour, motivational climate, and mental toughness in sport. *International Journal of Sports Science & Coaching*, 11(2), 172-181.

Ntoumanis, N., & Standage, M. (2009). *Motivation in physical education classes: A self-determination theory perspective*. Theory and research in Education, 7(2), 194-202

Paulhus, D. L. (1991). *Measurement and control of response bias*.

Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2017). The effect of coaches' controlling style on the competitive anxiety of young athletes. *Frontiers in psychology*, 8, 572.

Reinboth, M., Duda, J. L., & Ntoumanis, N. (2004). Dimensions of coaching behavior, need satisfaction, and the psychological and physical welfare of young athletes. *Motivation and Emotion*, 28(3), 297-313.

Ryan, R. M. (1981). *An exploration of the controlling and informational components of interpersonal and intrapersonal communications*. Unpublished doctoral disseration. University of Rochester.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.

Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. *Guilford Publications*.

Sarmah, P., Van den Broeck, A., Schreurs, B., Proost, K., & Germeys, F. (2022). Autonomy supportive and controlling leadership as antecedents of work design and employee well-being. *BRQ Business Research Quarterly*, 25(1), 44-61.

Sekaran, U., & Bougie, R. (2016). *Research methods for business*: A skill building approach. john wiley & sons.

Spielberger, C. D. (1972). *Anxiety: Current trends in theory and research*. New York: Academic Press.

Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of educational psychology*, 95(1), 97.

Standage, M., Duda, J. L., & Ntoumanis, N. (2006). Students' motivational processes and their relationship to teacher ratings in school physical education: A self-determination theory approach. *Research quarterly for exercise and sport*, 77(1), 100-110.

Tamminen, K. A., & Crocker, P. R. E. (2013). "I control my own emotions": Emotional control and antecedents of state anxiety among elite adolescent volleyball players. *Journal of Sports Sciences*, 31(7), 747-756.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). *Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction*. Work & stress, 22(3), 277-294.

Wang, C. J., Chatzisarantis, N. L., Spray, C. M., & Biddle, S. J. (2002). Achievement goal profiles in school physical education: Differences in self-determination, sport ability beliefs, and physical activity. *British Journal of Educational Psychology*, 72(3), 433-445.

Weinstein, N., Ryan, R. M., & Deci, E. L. (2013). *Motivation, meaning, and wellness: A self-determination perspective on the creation and internalization of personal meanings and life goals*. In The human quest for meaning (pp. 127-152). Routledge.

Woodman, T. I. M., & Hardy, L. E. W. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of sports sciences*, 21(6), 443-457.