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3 The effects of rational and irrational coach team talks on the cognitive appraisal and
4 achievement goal orientation of varsity football athletes

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1 **Abstract**

2 The effects of rational and irrational coach team talks on cognitive appraisal and achievement
3 goal orientation were examined. During the half-time interval of a 60-minute football match,
4 25 male varsity football athletes ($M_{age} = 20.20$; $SD \pm 1.38$ years) received a rational ($n = 13$)
5 or an irrational ($n = 12$) team talk from a coach. Irrational and rational beliefs were measured
6 before the football match. Task engagement, cognitive appraisal (challenge and threat), and
7 achievement goal orientation (approach and avoidance) regarding second-half football
8 performance were measured following team-talk delivery. Athletes in the rational team talk
9 condition reported significantly lower threat appraisal and avoidance goal orientation than
10 athletes in the irrational team talk condition. No significant between-condition differences
11 emerged for challenge appraisal and approach goal orientation. For coaching practice, data
12 suggest that communicating rational or irrational beliefs to football athletes through a half-
13 time team talk will influence appraisal and achievement goal orientation regarding upcoming
14 performance.

15

16 **Keywords**

17 Rational emotive behaviour therapy, irrational beliefs, rational beliefs, appraisal, achievement
18 goals

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1 **Introduction**

2 Irrational and rational beliefs, classified within Rational Emotive Behaviour Therapy
3 (REBT)¹, are emerging as important constructs within sport psychology literature². Irrational
4 beliefs (rigid, extreme, and illogical) are associated with dysfunctional emotions (e.g.
5 unhealthy anxiety) and maladaptive behaviours (e.g. avoidance) that can hinder well-being
6 and long-term goal attainment³. In contrast, rational beliefs (flexible, non-extreme, and
7 logical) are associated with functional emotions (e.g. healthy anxiety) and adaptive
8 behaviours (e.g. approach focus) that can aid well-being and long-term goal attainment³.
9 Within REBT, irrational beliefs comprise demandingness (a preference transmitted into a
10 demand; e.g. “I want to succeed and therefore I must”), awfulising (if an event happens then
11 nothing could be worse; e.g. “it is awful to fail”), Low Frustration Tolerance (LFT: adversity
12 or discomfort cannot be tolerated; e.g. “I cannot stand failing”), and depreciation (self and/or
13 others rated on the basis of one aspect; e.g. “I am a complete failure if I fail”)⁴. Alternatively,
14 rational beliefs comprise strong preferences (an assertion of a preference and negation of a
15 demand; e.g. “I really want to succeed but that does not mean I must”), anti-awfulising (if an
16 event happens then worse things could occur; e.g. “failing is bad but not awful”), High
17 Frustration Tolerance (HFT: adversity or discomfort can be tolerated; e.g. “failing is tough
18 but I can stand failing”), and acceptance (self and/or others are not rated on the basis of one
19 aspect; e.g. “failing does not make me a complete failure. Failure just shows that I am
20 fallible”)⁴. Recent research has shown how sport psychologists can apply REBT to reduce
21 irrational beliefs and enhance rational beliefs among athletes through education and
22 counselling⁴⁻⁶. However, it is not the sole responsibility of sport psychologists to promote
23 rational beliefs to athletes since all members of an athlete’s support network (e.g. coaches)
24 can be integral in the development of rational thinking.

25 Although the precise origins of irrational and rational beliefs are not clearly defined
26 by research it is thought that there is a biological basis for such beliefs⁷. Indeed, Ellis⁷

1 suggested that almost everyone is irrational some of the time. It is also recognised that
2 common cultural stereotypes communicated in language, stories, and songs contribute to the
3 development of rational and irrational thinking⁸. In particular, General Semantics Theory⁹
4 suggests that people are influenced by language used in communication with others and
5 oneself. REBT literature suggests that the formation and expression of irrational beliefs is a
6 product of both genetics and socialisation¹⁰ where a predisposition to hold irrational beliefs is
7 exacerbated by those around us whom we look to for guidance¹¹. Communicating imprecise
8 language (the verbal expression of rigid, extreme, and illogical beliefs) can therefore augment
9 imprecise thinking¹². Thus, a coach who communicates irrationality (e.g. “we must win” and
10 “it would be terrible to lose”) to their athletes may encourage irrational thinking already
11 innately held in those athletes.

12 Akin to the Cognitive Appraisals Paradigm¹³, irrational and rational beliefs are ways
13 of appraising (hot cognition) particular representations of reality (cold cognitions) in terms of
14 their personal significance to an individual (goal or motivational relevance)¹². On approach to
15 competitive situations, athletes can cognitively appraise an event as either a challenge
16 (positive) or a threat (negative)¹⁴. In a challenge state, resource appraisals meet or exceed
17 demand appraisals whereas in a threat state, demand appraisals exceed resource appraisals¹⁴.
18 Rational and irrational beliefs may influence cognitive appraisal through their association
19 with demand and resource appraisals. For example, irrational beliefs are primarily
20 characterised by demandingness³ which may elevate perceived demand appraisals imposed
21 upon athletes. Compared to threat appraisals, challenge appraisals are associated with a focus
22 on approach goals rather than avoidance goals¹⁵ and superior performance¹⁶. The notion that
23 achievement goals of approach and avoidance are an important aspect of challenge and threat
24 stems from research demonstrating that participants holding approach goals (striving for
25 competence and success) view important situations (e.g. exams) as a challenge whereas
26 participants holding avoidance goals (striving to avoid incompetence and failure) view

1 important situations as a threat¹⁷. This achievement goal framework¹⁸ has also been examined
2 in sport settings where approach goals have been positively related to challenge and
3 avoidance goals positively related to threat¹⁹.

4 Cognitive appraisal is also influenced by socially derived information such as
5 communication with others. For example, Social Comparison Theory²⁰ proposes that
6 individuals look to others for information on appropriate emotional responses during episodes
7 of stress. Accordingly, individuals may suggest or infer coping strategies based on their own
8 experiences which can help others to focus on the positives²¹. Such social support can
9 convince an individual that they possess coping abilities adequate to cope with the stressor
10 faced²². In particular, informational social support contributes to positive appraisal by
11 allowing individuals to clarify their understanding of potentially threatening stimuli²³. Indeed,
12 challenge appraisals can be promoted via the use of instructions given to athletes on approach
13 to performance²⁴.

14 In sum, the provision of information by others can influence irrational and rational
15 thinking and associated cognitive appraisals of athletes facing competition, influencing
16 cognitive, emotional, and behavioural responses. Past research has not examined the
17 influence of rational and irrational instructions on cognitive appraisal and therefore it is
18 unknown whether rational and irrational beliefs expressed through verbal communication can
19 augment adaptive or maladaptive psychological and behavioural approaches to athletic
20 competition. One important opportunity to influence athletes' psychological and behavioural
21 approaches to competition via verbal communication is through a coach's half-time team talk
22 common in team sports such as football. Whilst there is a dearth of research on half-time
23 team talks, there is some literature on pre-game team talks. Specifically, research indicates
24 that athletes feel team talks that motivate effort and express emotion contribute positively to
25 performance²⁵ and are preferred in more important competitions²⁶. Team talks that are

1 informational are also associated with greater recipient efficacy beliefs compared to
2 emotional team talks²⁷.

3 Overall, the present study sought to examine the effects of rational and irrational half-
4 time coach team talks on the cognitive appraisal (challenge or threat) and achievement goal
5 orientation (approach or avoidance) of football athletes. Based on previous research²⁴ and
6 REBT theory¹², it was hypothesised that participants receiving a rational half-time team talk
7 would report higher challenge appraisal and approach goals, and lower threat appraisal and
8 avoidance goals, compared to participants receiving an irrational half-time team talk. It was
9 also hypothesised that both team talk conditions would perceive the second-half of their
10 football performance to be equally important because rational and irrational beliefs are
11 theoretically distinct from event importance⁵.

12 **Method**

13 *Participants and design*

14 Participants comprised 25 male football athletes from one British university football
15 organisation ($M_{age} = 20.20$; $SD = 1.38$ years). Participants were predominantly White British
16 and experienced football athletes ($M_{exp} = 12.60$; $SD \pm 2.89$ years) who represented their first
17 ($n = 11$) or second team ($n = 14$). All positions found in a football team were represented
18 including goalkeepers ($n = 2$), defenders ($n = 5$), midfielders ($n = 13$), and attackers ($n = 5$).
19 The first team coach split participants into two equally-matched football-ability teams who
20 were to compete in a 60-minute football match consisting of two 30-minute halves. During
21 the half-time interval of a competitive football match, participants in team 1 ($n = 13$) received
22 a rational team talk whilst participants in team 2 ($n = 12$) received an irrational team talk. We
23 were unable to fully satisfy statistical power given that participants were recruited from two
24 real-life football teams that converged to form a squad of football athletes. Typically, a
25 football squad used for competitive football matches consists of approximately 25 athletes.
26 Nevertheless, drawing participants from real-world football teams whilst adopting an

1 experimental research design in a naturalistic setting offers high ecological validity. Ethical
2 approval was granted by an institutional ethics panel.

3 *Irrational and rational team talks*

4 The content of team talks was developed by all authors in line with descriptions and
5 examples of irrational and rational beliefs documented in REBT literature⁴. The length of
6 team talks was consistent with previous literature exploring pregame speeches²⁸. Team talks
7 were initially verified by a sport psychology researcher/practitioner with experience of
8 researching REBT and applying REBT principles as a practitioner. Subsequent pilot-testing
9 involving three football athletes confirmed that the team talks were understandable and
10 appropriate for football. The irrational team talk contained statements indicative of
11 demandingness (e.g. “you absolutely must play well in the second-half”), awfulising (e.g.
12 “losing is terrible and in the second-half there could be nothing worse than to
13 underperform”), LFT (e.g. “failure to win the second-half would be completely intolerable”),
14 and depreciation (e.g. “by performing poorly in the second-half you will have let your
15 teammates down [...] making you a poor athlete and a failure”). The rational team talk
16 contained statements indicative of strong preferences (e.g. “you want more than anything to
17 play well in the second-half”), anti-awfulising (e.g. “losing is very bad but not terrible, so in
18 the second-half there could be much worse things than to underperform”), HFT (e.g. “losing
19 the second-half would be tough to handle but it is bearable and would be tolerable”), and
20 acceptance (e.g. “by performing poorly in the second-half you will have let your teammates
21 down [...] but this does not make you a poor athlete or a failure”). The delivery of each team
22 talk lasted approximately 5 minutes.

23 *Initial assessment*

24 Four weeks prior to the football match, participants gave informed consent and completed the
25 Shortened General Attitudes and Beliefs Scale (SGABS)²⁹. The SGABS consists of 26 items,
26 22 of which form a total irrationality subscale whilst 4 items form a rationality subscale.

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1 Participants rated the extent to which they agreed with each item on a 5-point Likert scale
2 ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on each subscale
3 represent stronger beliefs. The total irrationality subscale demonstrated internal reliability in
4 the current study ($\alpha = .85$) whilst poor internal reliability was found for the rationality
5 subscale ($\alpha = .28$).

6 *The football match*

7 All participants, university coaches, and confederates attended the university's outdoor
8 football facilities. Confederate one was a 49-year old male who had been a professional actor
9 for eight years. Confederate two was a 30-year old male who had been acting professionally
10 for two years. Confederate one delivered the rational team talk whilst confederate two
11 delivered the irrational team talk. Both confederates were members of the same acting agency
12 based in the United Kingdom (UK) and were chosen to deliver team talks because they were
13 not known to participants and were experienced at learning scripts accurately. Confederates
14 were emailed their team talk four weeks in advance of the football match so team talks could
15 be rehearsed.

16 Confederates were instructed to deliver their team talk at a moderate pace without using
17 inflection and gesturing to avoid the potential for factors such as change of tone and altered
18 pitch determining subsequent appraisal. Upon arrival to the football match, confederates
19 explained they had fully rehearsed their team talk and were able to deliver their team talk
20 verbatim. Immediately before the football match, confederates were introduced to
21 participants as experienced, professional, university football coaches to promote participant
22 engagement with team talks. The first team coach also explained that confederates would be
23 observing football performance and delivering a team talk during the half-time interval.
24 Accordingly, teams completed a warm-up and their football match. At the half-time interval,
25 both teams were tied on a score of 0-0. Coaches rounded football athletes together whilst the
26 third and fourth author encouraged participants to engage and listen to team talks. The third

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1 and fourth author also checked for the accuracy of team talk delivery which revealed that
2 both confederates delivered their team talk verbatim. After receiving their respective team
3 talk, participants completed a questionnaire booklet regarding their second-half football
4 performance.

5 *Measures*

6 *Task engagement.* Task importance is an important pre-requisite for challenge and
7 threat appraisal²⁴. Thus, a one-item task engagement measure was modified from past
8 research¹⁶. Participants indicated the importance placed on performing well in the second-half
9 of their football match on a 6-point Likert scale ranging from 0 (*not at all*) to 5 (*very much*
10 *so*).

11 *Appraisal.* The Appraisal of Life Events Scale (ALES)³⁰ consists of 16-items forming
12 three subscales that include challenge appraisal (six items), threat appraisal (six items), and
13 loss appraisal (four items). Only challenge and threat subscales were used in the current study
14 as these subscales reflect upcoming events. Participants indicated the extent to which they
15 agreed with each item on a 6-point Likert scale ranging from 0 (*not at all*) to 5 (*very much*
16 *so*). Higher scores on each subscale represent higher challenge and threat appraisal. Each
17 subscale possessed internal reliability in the current study ($\alpha = .80$, challenge appraisal; $\alpha =$
18 $.89$, threat appraisal).

19 *Achievement goals.* The Achievement Goal Questionnaire for Sport (AGQ-S)³¹
20 constitutes 12-items, 6 of which form an approach subscale whilst the remaining 6 items form
21 an avoidance subscale. Participants indicated the extent to which they agreed with each item
22 on a 7-point Likert scale ranging from 1 (*not at all true*) to 7 (*very true*). Higher scores on
23 each subscale reflect stronger achievement goal foci. Each subscale demonstrated internal
24 reliability in the current study ($\alpha = .63$, approach; $\alpha = .81$, avoidance).

25 *Data analyses*

1 Raw data was inputted into SPSS version 22. Outliers (1 score for challenge appraisal and 1
2 score for total irrational beliefs) with z values $\pm 2SD$ from the mean were removed from the
3 dataset³². An alpha value of < 0.10 was set for our main statistical analyses given the
4 directional nature of hypotheses formulated.

5 **Results**

6 *Task engagement*

7 Task engagement scores in each condition violated assumptions of normality ($p < 0.01$). No
8 significant difference in task engagement ($U = 62.50, z = -.665, p > 0.05$) was found between
9 the rational ($M = 4.67, Md = 5.00, SD = .65$) and irrational team talk conditions ($M = 4.58,$
10 $Md = 5.00, SD = .51$). Ratings of task engagement within-conditions were also significantly
11 greater than the median value on the task engagement scale ($p < .001$), indicating that
12 participants in each condition thought their second-half performance was highly important.

13 *The effects of team talks on cognitive appraisal and achievement goals*

14 Research has suggested that age³³ and internally held beliefs³⁴ influence rational and
15 irrational thinking. Nevertheless, no significant between-condition differences in age ($t(23) =$
16 $1.35, p > 0.05$), rational beliefs ($t(23) = 1.15, p > 0.05$), and total irrational beliefs ($t(22) =$
17 $1.35, p > 0.05$) emerged in the current dataset. Controlling for age, rational beliefs, and total
18 irrational beliefs within our main statistical analyses was therefore deemed inappropriate.

19 Based on Zhu's³⁵ absolute criterion, all variables displayed either no correlation ($r = 0-0.19, p$
20 > 0.05) or a low correlation ($r = 0.20-0.39, p > 0.05$), with the exception of the correlation
21 between threat appraisal and avoidance goal orientation which was moderate and significant
22 ($r = .50, p < 0.05$). Given that low or non-meaningful correlations were predominantly
23 displayed between variables, main statistical analyses were conducted at the univariate level
24 only³⁶. Preliminary analyses indicated that all variables met assumptions of normality and
25 homogeneity ($p > 0.05$). No significant difference was found in challenge appraisal ($t(22) =$
26 $.27, p > 0.10$) between the rational ($M = 3.00, SD = .84$) and irrational team talk conditions

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1 ($M = 3.08, SD = .64$). In contrast, participants in the rational team talk condition reported
2 significantly lower ($t(23) = 2.49, p < 0.10, \eta^2_p = 0.21$) threat appraisal ($M = 1.29, SD = .92$)
3 compared to participants in the irrational team talk condition ($M = 2.18, SD = .86$). No
4 significant difference was found in approach goal orientation ($t(20) = .04, p > 0.10$) between
5 the rational ($M = 5.57, SD = .65$) and irrational team talk conditions ($M = 5.56, SD = .73$).
6 However, participants in the rational team talk condition reported significantly lower ($t(22) =$
7 $1.80, p < 0.10, \eta^2_p = 0.13$) avoidance goal orientation ($M = 3.85, SD = 1.23$) compared to
8 participants in the irrational team talk condition ($M = 4.74, SD = 1.13$). Between-conditions
9 differences in all dependent variables are presented in Figure 1.

10 **Discussion**

11 The present study demonstrates the effects of rational and irrational half-time coach team
12 talks on cognitive appraisal and achievement goals among varsity football athletes. Data
13 indicate that athletes perceived their second-half football performance to be important
14 regardless of whether they received a rational or an irrational team talk. However, athletes
15 who received a rational team talk reported significantly lower threat appraisal and avoidance
16 goal orientation concerning their second-half football performance compared to athletes who
17 received an irrational team talk. No significant between-condition differences were found for
18 challenge appraisal and approach goal orientation.

19 Previous commentaries suggest that promoting rational rather than irrational beliefs to
20 athletes could be demotivating for performance³⁷. Nevertheless, athletes in the current study
21 were equally and highly motivated for their second-half football performance irrespective of
22 whether irrational or rational beliefs were communicated through a half-time team talk. This
23 finding is unsurprising given that promoting rational beliefs encourages athletes to adopt
24 strong preferences about events that do not devalue the importance of performance⁵. For
25 example, rational beliefs encourage athletes to draw on healthier motives (e.g. “I want”) for
26 upcoming performances whereas irrational beliefs encourage unhealthy motives (e.g. “I

1 must”)⁵. Indeed, a misconception exists that rational beliefs are in some way less
2 motivational due to the power of “musts”. This misconception is based on an inaccurate
3 understanding of motivation, and in particular, presents motivation as a one-dimensional
4 construct where one can either can be high or low in motivation. Yet motivation is a multi-
5 dimensional construct where the quality as well as the quantity of one’s motivation is
6 important. For example, whilst “I must succeed” is akin to the introjected regulation construct
7 within self-determination theory (SDT)³⁸, “I want to succeed” is much more akin to intrinsic
8 motivation³⁹. For acute performance situations, introjected regulation can inspire effort⁴⁰ but
9 may also elicit anxiety. The importance of intrinsic motivation for acute and long-term
10 engagement and effort is well-known⁴¹. Therefore, both irrational and rational beliefs can
11 inspire effort but through different motivational mechanisms.

12 Athletes who received the rational team talk reported significantly lower threat
13 appraisal compared to athletes who received the irrational team talk. The Theory of
14 Challenge and Threat States in Athletes (TCTSA)¹⁴ suggests that a threat state emerges when
15 resource appraisals do not meet demand appraisals. Perhaps communicating irrational beliefs
16 rather than rational beliefs to athletes increased perceived demand appraisals and thwarted
17 perceived resource appraisals on approach to second-half football performance. For example,
18 demand appraisals (as posited in the TCTSA)¹⁴ include danger to esteem which reflects the
19 potential for an event to cause embarrassment partly due to being evaluated by others. The
20 irrational belief that “failing makes me a failure” (as promoted within the irrational team talk)
21 may have augmented perceived danger to esteem and consequently inflated demand
22 appraisals. Other characteristics of irrational beliefs (e.g. LFT) may have thwarted resource
23 appraisals by suggesting that athletes would have diminished efficacy around coping with
24 failure (e.g. “I cannot stand failing”). Indeed, Bandura’s self-efficacy theory⁴² proposes that
25 verbal persuasion is a source of self-efficacy among athletes. Research highlights that
26 negative verbalisations characterised by “I can’t” emphasise reduced capabilities and are

1 therefore associated with diminished efficacy beliefs⁴³. Data also highlights that athletes in
2 the rational team talk condition reported significantly lower avoidance in relation to their
3 second-half football performance compared to athletes in the irrational team talk condition.
4 This finding is in line with past research suggesting that demandingness is positively related
5 to avoidance⁴⁴ and awfulising is positively associated with submissiveness⁴⁵.

6 The findings that participants in the irrational team talk condition reported higher
7 threat and avoidance are consistent with REBT theory and research. Irrational beliefs
8 concerning stressors are associated with physical and/or mental withdrawal (avoidance) from
9 the situation while rational beliefs are associated with facing-up to the situation and taking
10 constructive action (approach)⁴⁶. In a recent study of qualified football coaches⁴⁷, irrational
11 beliefs were significantly and positively related to threat but not related to challenge. In
12 another recent study of elite archers, avoidance goals were reduced in five of the six
13 participants following an REBT intervention⁴⁸. Thus, irrational beliefs may increase threat
14 appraisals and consequently trigger a focus on avoidance goals. That said, causation cannot
15 be assumed from extant research and more experimental research is required to examine such
16 a hypothesis.

17 Given between-conditions differences in threat appraisal, the finding that participants
18 in both conditions reported similarly high levels of challenge appraisal is potentially
19 perplexing. Perhaps it is inaccurate to consider challenge and threat as two extremes of one
20 continuum and more accurate to conceptualise challenge and threat as two separate
21 constructs. In other words, when appraising an upcoming event it may be possible to have
22 high challenge and high threat, be high in one state and low in the other, or indeed be low in
23 both states. Some evidence from extant literature indicates that challenge and threat are
24 physiologically distinct while self-reported challenge and threat cognitive appraisals can be
25 very similar on approach to performance situations²⁴. The fact that both conditions in the
26 current study reported high challenge may indicate that participants felt the football match

1 was “exciting” but that participants in the irrational team talk condition felt that the football
2 match was also “frightening” (items from the ALE scale). Logically one can understand how
3 a meaningful event can elicit both excitement and fright. One can reflect on the feelings of
4 waiting to ride a roller-coaster where excitement and fear may both be salient. Future
5 research should therefore investigate the potentially orthogonal nature of challenge and threat
6 and the propensity for performers to experience both challenge and threat. The measures used
7 in the current study should also be taken into consideration when interpreting appraisal and
8 achievement goal data. The ALE scale measures challenge and threat in line with Lazarus’
9 conceptualisation¹³ whereas measures of achievement goals are more aligned to the
10 TCTSA¹⁴. Thus, it is possible that participants’ challenge and threat appraisal scores do not
11 reflect the cognitive appraisal processes conceptualised within the TCTSA. This finding
12 echoes previous calls for the development of a specific measure of challenge and threat that
13 aligns with the TCTSA¹⁶.

14 No manipulation checks were taken to confirm participant engagement with team
15 talks and perceived realism of team talks. Future research should therefore confirm team talk
16 engagement and realism by implementing relevant manipulation checks. The poor internal
17 reliability score found for the rational beliefs scale of the SGABS means that data pertaining
18 to rational beliefs should be interpreted with some caution. Perhaps a more internally reliable
19 rational beliefs scale may have revealed different rational beliefs scores among our
20 participants which could have meant controlling for rational beliefs within our statistical
21 analyses was necessary. Emerging research has developed and validated a measure of
22 irrational beliefs for performance contexts (the irrational Performance Beliefs Inventory:
23 iPBI)⁴⁹. The poor internal reliability score found for the rational beliefs scale of the SGABS
24 perhaps justifies the need to develop a full rational beliefs measure that can be used alongside
25 a full irrational beliefs measure relevant to performance contexts. Future research may also
26 wish to confirm the external validity of our findings by recruiting larger samples using an

1 experimental design. Additionally, future research could explore the effects of rational and
2 irrational coach team talks on other outcomes documented in REBT literature (e.g. emotion
3 and performance). Finally, future applied research could document the effectiveness of REBT
4 education delivered to coaches to shape future coaching practice.

5 In conclusion, the present study found that football athletes were equally and highly
6 motivated for their second-half football performance regardless of whether a rational or an
7 irrational half-time team talk was communicated by a coach. Chiefly, athletes who received a
8 rational team talk reported significantly lower threat appraisal and avoidance goal orientation
9 compared to athletes who received an irrational team talk. It would appear that promoting
10 rational beliefs through a half-time team talk as a coach encourages athletes to adopt a less
11 negative cognitive appraisal state and maladaptive achievement goal orientation in relation to
12 upcoming athletic performance.

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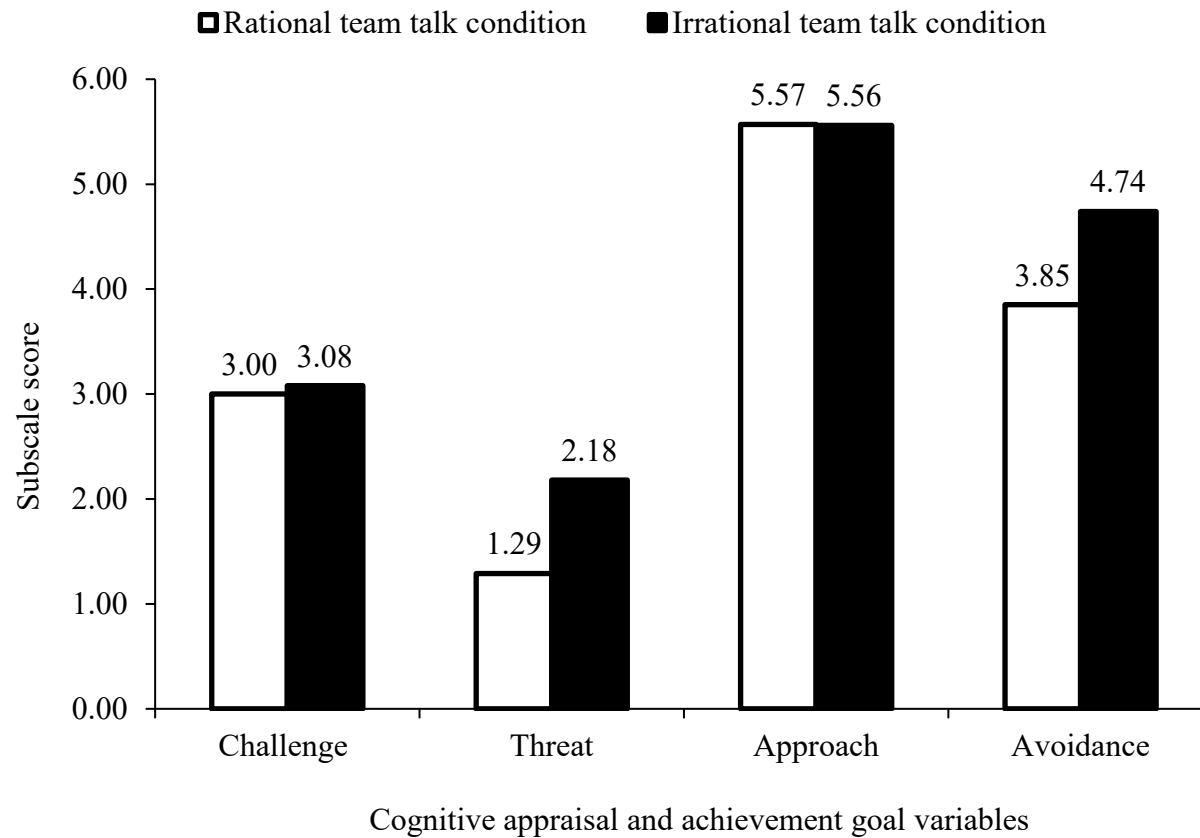
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1

2 **Figure 1.** Mean differences in cognitive appraisal (challenge and threat) and achievement goal orientation (approach and avoidance) between the
3 rational and irrational team talk conditions.