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Goal-directed self-talk used to self-regulate in male basketball competitions

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This study examined how goal-directed self-talk may help basketball players to self-regulate in stereotypical competitive situations: seconds before a challenging game, while clearly winning or clearly losing, and at the close of a tight game. Participants were recruited in groups of three to four, until preliminary inspection of the data indicated that data saturation was reached. In the end, 34 basketball players voluntarily took part in individual interviews, writing up to three self-instructions they had used in each of the four competitive situations to self-regulate. Content analyses revealed that self-talk in competitive basketball situations serves cognitive functions (e.g., regulating cognition and behaviour), motivational functions (e.g., promoting mastery goals) and emotion and activation-regulating functions (e.g., creating activated states). More specifically, the results also indicated that athletes' self-talk may serve functions specific to the psychological demands experienced in each situation. It is argued that knowing how athletes counsel themselves, could prove important for applied sport psychologists to design psychological skill training.

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Everyday experience is congruent with scientific findings, in that self-regulation is important for individual and collective performance levels (e.g., Martinent, Ledos, Ferrand, Campo, & Nicolas, 2015). To better understand one of athletes' self-regulation strategies, this study focused on goal-directed self-talk. This self-regulation strategy can be defined as (a) an act of syntactically recognisable communication (Van Raalte, Vincent, & Brewer, 2016), articulated either audibly or subvocally (Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000), addressed to the self, with interpretative elements associated to its content (Hardy, 2006); (b) which is a controlled mental process deliberately employed towards solving a problem or making progress on a task (Christoff, Gordon, & Smith; 2011). A study on the use of goal-directed self-talk to self-regulate in competition is of interest to sport psychologists because it informs practitioners how athletes autonomously approach psychological demands placed by competition. Hence, it would lay foundations for psychological skills training.

Self-talk can regulate multiple psychological processes related to sport performance (Van Raalte et al., 2016), including key aspects of human performance, such as focus of attention and motivation (Galanis, Hatzigeorgiadis, Zourbanos, & Theodorakis, 2016). To grasp the multifunctionality of self-talk in self-regulation, a major line of research has focused on the aims of self-talk (e.g., Theodorakis, Hatzigeorgiadis, & Chroni, 2008). Initially, a dichotomous distinction was made between motivational and instructional self-talk (Theodorakis et al., 2000), and, later, specific functions of both motivational and instructional self-talk were described (e.g., Theodorakis et al., 2008). Along these lines, Latinjak, Zourbanos, López-Ros and Hatzigeorgiadis (2014) started developing an evidence-based structure of self-talk functions which includes many of the previously identified self-talk functions. This structure was deemed an adequate point of departure for this research, because subsequent studies managed to replicate the initial self-talk function categories (e.g., Latinjak, Hatzigeorgiadis, & Zourbanos, 2017).

According to the functions described in initial qualitative investigations on goal-directed self-talk (e.g., Latinjak et al., 2014; 2017), athletes would cope with psychological demands in sports, using self-talk to provoke any of three cognitive changes or four changes in emotion and activation. Regarding cognitive change, self-talk can serve to reconstruct cognitions (e.g., Not everything can go the way you want it to go/ It's not your fault), regulate cognition and behaviour (e.g., Concentrate/ Lift up your elbow), and precipitate facilitative attitudes for the future (e.g., Believe in yourself/ Try and have fun). Regarding emotions and activation, self-talk can specifically serve to control dysfunctional activated states (e.g., Don't be afraid/ Don't

get angry) and deactivated states (e.g., Don't give up/ Don't relax) and to create or maintain functional activated states (e.g., Give 100%/ Come on!) and deactivated states (e.g., Calm down/ Relax). Nonetheless, this structure of self-talk functions applies to sport in generally. To describe concrete situations before or during competitions, subtle nuances within the major categories might require consideration to account for specific self-talk effects related to performance (cf., Latinjak, Masó, & Comoutos, 2018).

Accordingly, we were interested in describing the specific self-talk functions that explain how self-talk helps athletes to cope with different competitive situations. To be more accurate in the description of self-talk functions, a single sport, basketball, was chosen. Basketball is a team sport that requires both individual and collective performance, and that comprehends precision as well as strength and endurance tasks, each related to different instructional and motivational self-talk functions (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011). In order to define a reduced number of stereotypical situations, a set of task constrains was defined, which accounts for part of the variability in sport scenarios as each one is different and unique. To begin with, match status has repeatedly been used as a situational variable in studies analysing performance patterns in competition (e.g., Taylor, Mellalieu, James, & Shearer, 2008). Moreover, the moment in the game appears to be another relevant situational variable in the study of sport emotions and their regulation. For instance, Hill and Shaw (2013) identified the start of the game as well as the closing stages of a tight game as important moments for anxiety and coping with pressure. Combining match status (unpredictable outcome, winning and losing) and the moment (before, during and at the close), we identified four stereotypical situations with different inherent challenges for the athletes: seconds before a game expected to be tough, in the middle of a game while clearly winning, in the middle of a game while clearly losing, and at the closing stages of a tight game.

In summary, the aim of this study was to describe the functions of self-talk used by male basketball players to self-regulate in four stereotypical competitive situations. We believe this study to be pertinent to applied practice because self-talk is an essential mechanism of change in many sport-relevant behaviour-change techniques (Michie et al., 2013), including Rational-Emotive Behaviour Therapy (Turner & Barker, 2014) and Cognitive-Behaviour Interventions (Neil, Hanton, & Mellalieu, 2013). Understanding how self-talk may be used in significant sport scenarios, could ultimately inform the systematic development and evaluation of sport behaviour change interventions, in which self-talk is an essential mechanism of change.

Method

Participants

Regarding the sampling criteria and strategy, we followed the guidelines provided by Robinson (2014) about participant sampling in qualitative research. In this study, we targeted (a) adult male basketball players, who, (b) at the time of the data collection, had actively competed for at least six years in federate teams from the Catalan provinces of Barcelona and Girona, (c) had suffered no severe injury during the past six months, and (d) spoke fluently Spanish, Catalan or English. Regarding sample size, participants were invited for interviews in turns of three to four participants from the same club. This process continued until the point of data saturation was reached. That is, a previous round of interviews did not result in the identification of new themes. Finally, in light of significant differences between males and females in the functions of self-talk during competition (Latinjak, Ramis, & Torregrosa, 2017), this study was limited to male athletes.

Thirty-four Spanish male adult basketball players ($M_{age} = 19.74$ years, SD = 2.93) agreed to participate in this study. At the time of the data collection, these experienced players ($M_{experience} = 12.88$ years; SD = 3.84) were all actively engaged in training ($M_{h/week} = 6.71$, SD= 1.85) and competition at regional levels. Regarding playing positions, players described themselves primarily as guards (n = 14), forwards (n = 12) and centres (n = 8). All participants signed an informed consent form and institutional permission to carry out the study was granted from a local ethics committee.

Procedures and measures

In face-to-face meetings, the participants were presented a booklet comprised of the informed consent form, a short questionnaire regarding descriptive data and the main research questions. In random order, the participants were instructed to recall and describe to the researcher a situation (a) *seconds before* a match expected to be tight, while waiting for the jump ball; (b) *while winning* by a large margin (more than 20 points) just after halftime; and (c) *while losing* by a large margin (more than 20 points) just after halftime and (d) *at the close* of a tight match. For each situation, the participants were subsequently asked to write up to three self-instructions they had "used in that particular situation, to self-regulate, solve a problem or make progress on a task". The recall and data sampling procedures were replicated from earlier studies on goal-directed self-talk functions (e.g., Latinjak, Hatzigeorgiadis et al., 2017). The researcher who ran the interviews was trained to develop trust and rapport in the initial stages of the interview (Sparkes & Smith, 2014), as well as to explain and discuss both self-talk and the competitive situations without biasing the participants' responses (mainly, by using non-

sport-related examples). Furthermore, to limit implausible answers, the participants were repeatedly remined that there were no right nor wrong answers, and that it was normal if they couldn't provide an answer to some of the questions. Interviews ranged between 25 and 45 minutes.

Data analyses

To advance our understanding of self-talk functions in competitive situations, a previously developed and replicated structure was used as a leadoff. Hence, the data categorization procedures used by Latinjak et al. (2014) were considered to perform the content analyses. In summary, two of the authors split answers into meaning units, and classified independently each meaning unit into the seven major categories of self-talk (inter-rater agreement ranged between 93% and 100%). With regard to inter-rater agreement, limitations of this method to guarantee rigor in qualitative research have to be acknowledged (Smith & McGannon, 2018). Yet, the isolated coding of the analysts and the subsequent calculation of the inter-rater agreement ([number of agreements / number of themes] *100) was mainly performed to elicit discussions between the analysts regarding the categories and their descriptors. For this reason, at any step of the analysis, the two analysts convened to discuss about differences in their answers until either agreement was reached or limitations of the coding scheme were noted down. These annotations were examined later, to propose modifications to the initial coding scheme. Most disagreements were based on the two authors identifying different meanings within the same category. Along these lines, based on a large number of meaning units of future-oriented self-talk and a noteworthy variety amongst them, their content was explored inductively by the authors and a subcategorization was proposed. In Table S1, comments on methodological rigor are presented as supplementary online material. Following suggestions made on the importance of representing findings in qualitative research (Tracy, 2010), a group of two basketball coaches and five basketball players helped converting the results into an understandable and attractive illustration. The result of this discussion is displayed in the graphical abstract of this article.

Results and Discussion

In this study, we aimed to better understand though retrospective recall how the selftalk of male basketball players might help coping with psychological demands placed by stereotypical competitive situations. According to the participants' answers, male basketball players use self-talk in competition, in order of decreasing frequency (see, Table 1), to precipitate facilitative attitudes for the future (i.e., future-oriented self-talk), create or maintain functional activated states ("Keep going"), regulate cognition and behaviour ("Focus"), create or maintain functional deactivated states ("Patience") and control dysfunctional deactivated states ("Don't give in"). Self-talk used to reconstruct cognitions ("It's just yet another game") and control dysfunctional activated states ("There is no pressure") appeared least frequently. Accordingly, in a first step of the data analysis, all participants' answers could successfully be allocated in the functions described in initial qualitative investigations on goal-directed self-talk (e.g., Latinjak et al., 2014; 2017). Nonetheless, the large number of meaning units of future-oriented self-talk led to a second step in the data analysis, aimed at inductively exploring subcategories of self-talk aimed at precipitating facilitative mind sets for the future.

The inductive analyses performed on future-oriented self-talk resulted in the following subcategories: self-talk can aid performance by up-regulating ("You're good") or down-regulating ("They can still beat us") self-confidence, by promoting mastery goals ("Try playing even better"), performance-approach goals ("Keep scoring") and performance-avoidance goals ("You're not allowed to miss"), and by promoting intrinsic motivation ("Enjoy yourself"). To offer additional details on each secondary category, and to add transparency to the data analysis, Table S2 is provided as an online supplement, with definitions of all future-oriented self-talk categories, including related references from the literature.

Primary Categories of Goal-directed Self-talk, Secondary Categories within Future-oriented Self-talk, Examples, Frequencies and Percentages for each Game Situation.						
Primary goal-directed self-talk categories						
Controlling cognitive reactions	5	"It's only a game"	5 (5.6%)	0 (0%)	0 (0%)	0 (0%)
Regulating cognition and behaviour	40	"Concentrate"/ "Play defence"	9 (10.1%)	14 (21.9%)	5 (7.8%)	12 (17.4%)
Controlling activated states	9	"Don't get nervous"	5 (5.6%)	1 (1.6%)	2 (3.1%)	1 (1.4%)
Controlling deactivated states	18	"Don't relax"/ "Don't give up"	0 (0%)	12 (18.8%)	5 (7.8%)	1 (1.4%)
Creating activated states	50	"Come on"/ "Give 100%"	14 (15.7%)	9 (14.1%)	15 (23.4%)	12 (18.8%)
Creating deactivated states	22	"Relax"/ "Calm down"	13 (14.6%)	1 (1.6%)	3 (4.7%)	5 (7.2%)
Future-oriented self-talk	140	See examples below	43 (48.3%)	26 (42.2%)	33 (53.1%)	38 (55.1%)
Future-oriented self-talk subcategories		*				
Up-regulating self-confidence	61	"There is time left"/ "You can!"	21 (23.6%)	5 (7.8%)	14 (21.9%)	21 (30.4%)
Down-regulating self-confidence	15	"It's not done yet"	0 (0%)	9 (14.1%)	4 (6.3%)	2 (2.9%)
Promoting mastery goals	20	"Let's go for more"/ "Improve"	8 (9.0%)	4 (6.3%)	6 (9.4%)	2 (2.9%)
Prom. performance-approach goals	20	"We have to win"	6 (6.7%)	5 (7.8%)	3 (4.7%)	6 (8.7%)
Prom. performance-avoidance goals	14	"Don't mess up"/ "We can't lose"	3 (3.4%)	1 (1.6%)	5 (7.8%)	6 (8.7%)
Promoting intrinsic motivation	8	"Now, go and have fun"	5 (5.6%)	2 (3.1%)	0 (0%)	1 (1.4%)

Based on the participants' reflections on stereotypical situations prior to a tough game, self-talk may serve diverse functions related to anxiety control and goal engagement. Regarding anxiety, self-talk may raise crucial awareness (Latinjak et al., 2014) of debilitative anxiety and lower heightened levels of psychophysiological arousal (Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009). Additionally, self-talk may prevent from anxiety by reappraising the meaning of the situation (Gross, 2002) and by promoting self-efficacy (Hatzigeorgiadis et al., 2011). In regard to goal engagement, self-talk may promote intrinsic motivation as well as mastery and performance-approach goals (Morris & Kavussanu, 2009).

From reflections on dealing with clear advantages, self-talk may down-regulate excesses of confidence and, concurrently, raise awareness of positive, yet dysfunctional low-arousal states, like relaxation. It has been suggested that such negative-valence self-talk can increase motivation (Hardy, 2006), though it was also argued that it could also increase attention and awareness in situations perceived as unchallenging (Hardy, Roberts, & Hardy, 2009). Along these lines, self-talk also helps athletes to focus attention on task-relevant stimuli (Hatzigeorgiadis, Zourbanos, & Theodorakis, 2007) and mastery and performance-approach goals.

Reports on self-talk, used to deal with large disadvantages, indicate that self-talk may preliminarily serve to help players to prevent from disengagement. Awareness is risen on debilitative low-arousal emotions, like sadness, and, complementarily, required levels of psychophysiological arousal are uplifted (Theodorakis et al., 2000). In addition, self-talk may enhance self-efficacy. Furthermore, because disadvantages can be insurmountable, self-talk may promote mastery-approach goals. However, self-talk may be used to underline performance-avoidance goals, too, even though negative outcomes are certain. This may represent an error in players' self-regulation, as performance-avoidance goals are dysfunctional (Morris & Kavussanu, 2009). Thus, athletes may benefit from their replacement by acceptance of the situation.

Finally, participants' reflection on self-talk used at the close of tight games indicate that self-talk serves both instructional and motivational purposes (Hardy, 2006). When the entire game depends on few plays, self-talk may serve players directing their attention to relevant task-information. Moreover, presumably many players experience greater fatigue at the final stages of the game, and, therefore, self-talk can be helpful increasing or maintaining high levels of psychophysiological arousal. When facing an uncertain resolution, athletes may also benefit from self-talk that enhances self-efficacy (e.g., Zourbanos et al., 2016). Lastly, self-talk promotes performance goals, from which performance-approach goals may have potential benefits for the athletes, whereas performance-avoidance goals are debilitative and should be replaced.

On the matter of potential limitations of this study, readers would do well acknowledging that the suggestions that derive from this study are based on athletes' reflection on their use of self-talk. This approach was chosen because it allows to explore a broad range of self-talk functions. Nonetheless, the self-talk sampling strategy should be acknowledged, because it might have accessed biased memory. However, the relative fit of the data to the previous structure of self-talk (Latinjak et al., 2014, 2017, 2018) provides indirect support for

the integrity of the thought-sampling procedure. In addition, it should be kept in mind that the data collected in this study derive from athletes' reflections about past events, and that neither performance nor performance-related variables were actually measured. Hence, this study is limited insofar as no causal claims can be made based on the present data.

Furthermore, the homogeneous sample should be taken into consideration. We chose a homogeneous sample to explore the use of self-talk in a specific group of athletes. This brief study is thought to be a starting point for future inquiries into the athletes' use of self-talk in competition, using as independent variables sport type, experience and gender, and as dependent variables self-talk functions and perceived performance effects.

Despite these limitations, this study displayed how self-talk may be helpful to athletes while coping with psychological demands placed by stereotypical situations in basketball. Before the game, self-talk may calm pre-competitive anxiety and focus players' attention on their goals. While winning, self-talk may help players stay on the successful track by avoiding affective decay and by refocusing attention on the task and their goals. While losing, self-talk may prevent from disengagement increasing self-efficacy and focusing attention on the task and on mastery goals. When facing an uncertain close, self-talk may aid players focusing attention on the task and their goals, providing additional strength to overcome fatigue and increasing self-efficacy.

Knowing how athletes organically cope in competitions, allows applied practitioners to strengthen athletes' inner voice through psychological skill training. Some recent self-talk interventions introduced in the literature are innovative, insofar as they are based on the analysis of previous goal-directed self-talk and the exploration of alternative, more functional self-statements (e.g., Barwood, Corbett, Wagstaff, McVeigh, & Thelwell, 2015; Latinjak, Font-Lladó, Zourbanos, & Hatzigeorgiadis, 2016). Regarding the present study, for instance, self-talk aimed at promoting performance-avoidance goals ("Don't make any mistake") could be replaced with self-talk promoting situation-specific mastery- or performance-approach goals ("Improve your passing percentage" or "Try to win the fourth quarter"). Every athlete has an inner coach embedded within the mind, who offers counsel in most significant situations. Sport psychologists should become acquainted with this inner coach and learn how to communicate with it, teaching it to be more efficient coping with psychological demands placed by competitive sports.

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