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The effects of coaches' emotional expressions on players' performance: Experimental evidence in a football context

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ABSTRACT

Objectives: Across two experiments, we examined the effects of coaches' nonverbal expressions of pride, shame, and happiness on players' emotions and performance.
Design: Both experiments employed a between (emotional expression manipulation) within (pre- and post-manipulation) subjects design.
Method: An expert male football coach was scripted to deliver performance feedback randomly displaying a specified emotion to skilled players who had just performed a passing test. In Experiment 1 (n = 28), players' actual coach displayed pride or shame. In Experiment 2 (n = 60), a confederate displayed pride, shame, happiness, or a neutral expression. Players then performed the passing test for a second time. In both experiments, players reported their emotions and perceptions of the coach.
Results: The results showed that coaches' emotional expressions influenced players' emotions especially when players held a close relationship with the coach. Regardless, coaches' display of pride and happiness benefitted players' performance while the display of shame did not.
Conclusion: These findings provide the first experimental evidence for the effects of coaches' emotional expressions on players' emotions and performance. These findings have important practical implications and advance the literature on how coaches' emotional expressions may influence players' emotions and performance.

Coach-player interactions are integral to a variety of sports and performance contexts. These coach-player interactions can be — intentionally or unintentionally —accompanied by a coach feeling and displaying emotions, such as happiness, pride, shame, or anger. The display of such emotions through bodily and facial expressions may play a pivotal role in how coaches influence players' development, commitment, and performance (e.g., Becker, 2009; Potrac et al., 2017; Thelwell et al., 2017). However, to date very little research has examined the effects of coaches' emotional expressions on player performance (Van Kleef et al., 2019). To address this oversight, the current study reports two experiments that examined how coaches' nonverbal emotional expressions displayed when giving feedback influenced player performance.

The relationship between emotions and performance in sports has been extensively studied. Guided by theories such as the cognitive-motivational- relational theory (Lazarus, 2000), and the broaden-and-built theory (Fredrickson, 2001), this research has primarily focused on the intrapersonal effects of emotions — the influence of a performer's emotion on their own functioning. For example, studies have linked happiness with better sprint performance (Rathschlag & Memmert, 2015); anger with enhanced gross muscular peak force (Woodman et al., 2009); and, pride with increased goal-directed behaviour (Gilchrist et al., 2017). However, when performers experience emotions, they often inadvertently or deliberately express them. Considering the social nature of sports, such emotional expressions may be observed by and, in turn, influence others. Until recently, researchers have largely neglected these interpersonal effects.

The basic emotion theory (BET) views emotions as distinct and brief states involving subjective, physiological, cognitive, and expressive components that enable individuals to respond adaptively to recurring problems and opportunities for physical and social survival (Ekman, 1992; Keltner et al., 2019). This basic emotion perspective emphasises the functional nature of distinct emotions (e.g., anger, sadness) and contrasts those who describe emotions only in dimensions of intensity or pleasantness (e.g., Russell, 2003). The BET posits that emotions both serve an intrapersonal function enabling individuals to adapt to recurring environmental demands through influencing individual's feelings, thoughts, motivations, and behaviours (Levenson, 1999); and a social

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function coordinating social interactions through rapidly communicating critical information to others (Keltner et al., 2019). Central to this communicative function is that distinct emotions are associated with universally displayed and reliably recognized nonverbal expressions that communicate specific information and may exert unique interpersonal effects on observers (e.g., Shariff & Tracy, 2011).

While the BET denotes a clear link between one's current emotional state and its nonverbal expression, there are instances when individuals may consciously exert efforts to control the emotions they show to others (Côté & Hideg, 2011). In the context of coaching, coaches may deliberately display or suppress the nonverbal components associated with a particular emotion in an attempt to influence players (Friesen et al., 2020). For example, a coach may express happiness in response to a player's execution of a training drill. This expressed happiness could be a spontaneous (automatic) response to the emotion eliciting situation or a more deliberate attempt to evoke a particular reaction in this player. In both instances, it is the observable nonverbal expression of the coach that functions to communicate important information to the observing player (Furley, 2020, pp. 27–36; Parkinson, 1996).

Rooted in a social-functional perspective to emotion, Van Kleef (2009, 2016) developed the emotions as social information (EASI) theory to explain how distinct emotional expressions may exert interpersonal effects on observers. According to the EASI theory, emotional expressions can influence observers via two processes: affective reactions and/or inferential processing (Van Kleef, 2009). First, the observed emotional expression can elicit affective reactions when emotions spread from expresser to observer. This process of emotional contagion involves individuals' subconsciously or consciously catching the expresser's emotions through mimicry and afferent feedback (Hatfield et al., 1994), or social comparison (Barsade et al., 2018). Second, observers can infer information from an emotional expression about the expresser (e.g., feelings, beliefs, intentions), their evaluation of the (shared) event/situation, and/or their desired course of action. This information may, in turn, shape observers' emotional, cognitive, and behavioural responses to the expresser and/or the situation (Keltner & Haidt, 1999).

Though scarce, there is emerging evidence for the interpersonal effects of emotions in sports. To elaborate, research has linked pride displays with team performance (Moll et al. (2010) and observed that the transference of happiness between teammates (but not opponents) enhanced teammates' performance (Totterdell, 2000). Other studies revealed that observers use athletes' emotional expressions to make inferences about the situation. For example, observers' predictions of pitch characteristics and batter responses differed depending on the pitchers' display of happiness, anger or worry (Cheshin et al., 2016). Similarly, displays of pride shaped both laypeople and surf judges' evaluations of surfers' performance (Furley et al., 2020).

Collectively, these studies show that distinct emotions (expressions) can have a pervasive impact on observers' behaviour including that of performance. The findings further indicate that the effects seem contingent on social-contextual factors relating to the situation, the expresser, and the observer. The EASI theory predicts that observers may respond differently depending on the nature of the situation — cooperative or competitive. In (perceived) cooperative situations, where individuals' goals are linked, the effects of emotional expressions on observers are more likely to be driven by affective reactions and less by inferential processes (Van Kleef, De Dreu, & Manstead, 2010). Indeed, researchers have found that in cooperative situations, observers seemed to catch the emotions of the expresser influencing their subsequent performance (Totterdell, 2000; Visser et al., 2013). Inferential processing may occur though as observers can still derive information from the expressions depending on their information processing ability (i.e. noise distraction; Van Kleef, 2009).

So far, studies revealing interpersonal effects of emotional expressions in cooperative sporting contexts have primarily focused on player-teammate interactions (e.g., Moll et al., 2010; Totterdell, 2000). Given the fundamental role coaches play in shaping player performance (e.g., Becker, 2009), it is surprising that the influence of coaches' emotions on players' performance has been largely overlooked. One of the few exceptions is Van Kleef et al. (2019). In two field studies, they revealed that baseball coaches' expressions of happiness and anger were, respectively, positively and negatively associated with players' performance, and that the emotion linkage between coaches' expressed emotions and players' experienced emotions mediated these associations. Furthermore, football coaches' expressed happiness in pre-game speeches positively predicted team performance while expressed anger did not. In fact, these coaches expressed little anger; a suggestion consistent with elite coaches' reports of avoiding the expression of anger when communicating with their athletes (Hodgson et al., 2017). These findings suggest that coaches' emotional expressions may have differential effects on players' performance and players' emotions could play a role in the expressed emotion-performance link.

The purpose of the present research was to extend the knowledge of these field studies by further examining the effects of coaches' emotional expressions on players' emotions and performance. We focused on two other discrete emotions — pride and shame — which have been strongly linked with performance and have received increased research attention in sports (e.g., Moll et al., 2010). Pride is elicited "when one makes a comparison or evaluates one's behaviour vis-à-vis some standard, rule, or goal and finds that one has succeeded. Shame is elicited when such an evaluation leads to the conclusion that one has failed" (p. 742, Lewis, 2008). Evidence suggests that pride and shame have distinct, universally recognized nonverbal expressions including body and facial components that are spontaneously displayed in response to success and failure, respectively (Keltner, 1995; Tracy & Matsumoto, 2008). Both emotions play a central role in motivating and regulating goal-directed behaviour (Beall & Tracy, 2020). The experience and display of pride has, for instance, been shown to drive motivation (Williams & DeSteno, 2008), enhance feelings of control and confidence (Huang et al., 2010), reinforce achievement (Gilchrist et al., 2017), and benefit task performance (Herrald & Tomaka, 2002). The display and experience of shame has been linked with performance failure and low task satisfaction (e.g., Herrald & Tomaka, 2002), which may facilitate behavioural change (Fessler, 2007). Such a change was not observed though when athletes experienced shame regarding their training efforts (Gilchrist et al., 2017).

Though these emotions are typically elicited in response to one's own success or failure (self-focused pride or shame), studies have found that pride and shame can also be elicited in response to the achievements of others (other-focused pride or shame; Ritzenhöfer et al., 2019; Welten et al., 2012). Indeed, coaches may display pride or shame when they evaluate to what extent a player's performance has met their standards or expectations (cf. Potrac et al., 2017). When recognized by the player, this can help them to respond adaptively through affective reactions or inferential processes. Though little is known about how coaches' displays of pride or shame influence players, two studies have found interpersonal effects for pride and shame on teammates. First, in a real-world observational study, Moll et al. (2010) revealed that football players' displays of pride after taking a successful penalty kick in a penalty shootout were positively associated with overall team performance in the shootout. There was also a trend that players' displays of shame (i.e. gaze down) were negatively associated with team performance. Furley et al. (2015) also found strong interpersonal effects of these post-performance pride and shame expressions with teammates anticipating feeling similar emotions and associated cognitions.

These interpersonal effects of post-performance expressions of pride and shame in player-teammate interactions together with the beneficial effects of coaches' expressions of happiness on players (Van Kleef et al., 2019) suggest that coaches' expressions of pride and shame could have distinct effects on players' emotions and performance. However, to date, no study has examined these interpersonal effects in an experimental design. Therefore, across two experiments, we investigated: a) the

effects of coaches' nonverbal expressions of pride and shame on players' emotions and performance (Experiment 1 and 2); b) compared the effects of these two emotions with happiness (Experiment 2); and, c) explored whether players' emotions could play a role in the effects of coaches' emotional expressions on players' performance (Experiment 1 and 2). To ensure that the experiments closely resembled real-world coach-player interactions during training or competition, the experimental paradigm involved coaches giving (scripted) performance feedback to football players immediately after they had performed a demanding football passing task. While giving the feedback, coaches displayed the nonverbal expression of a particular emotion. After this, players performed the task for a second time.

1. Experiment 1

In Experiment 1, we examined the effects of coaches' nonverbal emotional expressions of pride and shame on players' emotions and performance. We used players' actual coaches because the interpersonal effects of coaches' emotions on players have been demonstrated within such existing relationships (Van Kleef et al., 2019). We made the following key hypotheses: First, based on the EASI theory and existing findings (Furley et al., 2015; Van Kleef et al., 2019), we predicted that coaches' nonverbal expressions of pride and shame would elicit similar emotions in players. We further predicted that expressed pride would benefit players' performance. Considering the findings of previous research (Gilchrist et al., 2017; Moll et al., 2010), we predicted that expressions of shame would have null- or negative effects on players' performance. Consequently, we anticipated that performance differences would emerge in favour of expressed pride. Finally, as research (Van Kleef et al., 2019) suggests that coaches' emotional expressions can influence players' performance via their experienced emotions, we explored whether players' emotions mediated the effects of coaches' expressed emotions on players' performance.

1.1. Methods

1.1.1. Participants and design

A convenience sample of 28 highly skilled male University football players (M_{age} = 19.50 years, SD = 1.23) was recruited for the study based on the following criteria. All participants: (a) competed at the equivalent of club level or above; and (b) were currently coached by one of the two male coaches in the study. The limited availability of players and their actual coaches made it difficult to obtain a large sample size. Participants had on average 13.25 years (SD = 2.01) competitive playing experience; previously played at county/regional level or above; were currently playing at club (n = 25), county/regional level (n = 3), and varied in playing position (goalkeeper, n = 1; defender, n = 10; midfielder, n = 9; attacker, n = 8). On a scale of 0 (not skilled) to 10 (very skilled), participants rated their passing and dribble ability on average as 6.54 (SD = 0.79) and as 6.04 (SD = 1.23), respectively. There were no significant differences between conditions in relation to any of these variables.

We used a 2 × 2 factorial design in which emotional expression (pride or shame) was the between-subjects factor and time (pre- and post-manipulation) the within-subjects factor. There were 14 participants in each experimental condition. With an alpha of .05 and 14 participants per condition, the GPower power calculation (Faul et al., 2007) indicated that the study was powered at .80 to detect a 2 × 2 interaction effect associated with effect sizes of f_s = 0.27-0.36 on the primary outcomes (players' performance). This corresponds to medium (f = 0.25) to large (f = 0.4) effects (Cohen, 1988).

1.1.2. Procedure

Following institutional ethics committee approval, participants were recruited for an experimental study that examined "the influence of coaches' feedback upon players' performance". Upon arrival at the testing area, participants were welcomed by a male experimenter who reminded them that the aim of the study was to assess their performance on a passing test and examine how feedback from their coach might influence their performance. Participants provided informed consent and completed a demographics form after which the experimenter gave an overview of the experimental procedures and passing task. This included telling participants that their performance would be recorded with two cameras (Sony FDR-AX53) and that they would: perform the passing test twice; get their (and others') performance scores upon completion of the study; and, receive feedback from their coach based on their performance in the first passing test. Meanwhile, the experimenter would look at the coach, who was circa 10m away from the experimenter and player. The coach remained at this position throughout the experiment and the only time players were close to him was when he gave them feedback. The experimenter then introduced the second experimenter (positioned about 8m away) as being responsible for the cameras and the lay-out of the passing test.

Throughout the experiment, the roles of the experimenters and the coach were fully scripted to ensure that: behaviours appeared credible and appropriate; were standardised across interactions and participants; and precluded uncontrolled interactions with participants. Further, the experimenter moved the participant along in a way that prevented any unscripted interactions and the lay-out of the experiment prevented any unsolicited player-coach interactions (e.g., when completing measures, participants had no view of the coach or the second experimenter).

The experimenter informed participants that they would get more detailed instructions and a practice trial after the opportunity to change kit and do a short warm-up. Some changed kit but none of them did a warm-up (likely because the practice run was sufficient). Once ready, participants were told that the aim of the passing task was to complete 16 passes against four coloured targets as quickly and accurately as possible. Performance would be determined by the time taken to complete the task and any errors made in the task. More specific instructions followed once participants walked into the passing area (*see the task section for more detail*). Participants were then given a practice trial of four passes to get familiar with the test. After the practice trial, the experimenter gave participants time to ask any final questions followed by a brief reminder of how to complete the task.

Participants then performed the passing test for the first time; this represented their baseline performance on the passing test. Once they had completed the test, the experimenter instructed the participants to walk to their coach for feedback. The coach positioned himself to provide feedback displaying one of two emotional expressions (*see Manipulation of coaches' emotional expressions section*). Following the feedback, participants completed a measure assessing their perception of the feedback and the coach (*Manipulation check*). They then performed the passing test for the second time.

Following completion of the second passing test, participants completed a measure to assess the emotions they experienced after receiving the feedback from the coach. Similar to previous research, we placed the emotion measure after completion of the second passing test to reduce participants' awareness of their emotional states induced by the emotional displays, which might have influenced participants' interpretations of the quality of their performance and the effect of the coaches' emotional displays on performance. (e.g., DeSteno et al., 2004; Van Kleef et al., 2009). They were subsequently thanked for their participation. In addition, participants were asked whether they had felt any suspicion during the experiment. This was to check whether participants noticed anything regarding the feedback (i.e. genuineness) their coach gave them after their performance on the first passing test (none stated anything suspicious). Finally, participants were fully debriefed about the manipulations and aim of the experiment. Each experiment lasted about 30 min.

The task. Football performance was assessed with the Loughborough Soccer Passing Test (LSPT, Ali et al., 2007). The LPST is a valid and reliable multi-faceted test of football skill performance that comprises

passing, dribbling, control, and decision making (e.g., Ali et al., 2007). It requires participants to complete 16 passes against four coloured target areas attached to standard gymnasium benches positioned in a rectangle around the playing area. An aluminium strip taped vertically in the middle of the target areas reflects a perfect pass (see Ali et al., 2007 for a detailed layout of the LSPT). To make the first pass, participants had to dribble the ball (Mitre Impel, size 5) from the middle of the testing area (inner zone) into the passing area (outer zone). As the ball bounced back from the target, they had to control the ball in the outer zone and dribble through the inner zone before attempting the next pass. To perform the 16 passes, players responded to the experimenter calling out one of the four colours. The order of the passes differed between the first and second test but was consistent for all participants. Both tests included 12 short and 4 long passes with each colour featuring four times. The reason for selecting the LSPT was two-fold. First, the LSPT is a realistic and engaging test to reliably assess performance, particularly in skilled football players (e.g., Foskett et al., 2009). More importantly, the novelty of the task and its multi-faceted and dynamic nature, made it difficult for players to make a subjective estimation of their performance. The inherent ambiguity of the level of their performance in this task increased the likelihood that participants would attend to their coach (Van Kleef, Homan, et al., 2010) and likely rendered all emotional conditions credible (Van Kleef et al., 2009).

Manipulation of coaches' emotional expressions. The coaches (both aged 24 years and in possession of the UEFA B license) delivered the feedback in their coaching kit. As noted previously, immediately after completion of the first passing test, participants walked across to the coach. At this point, the coach – depending on the condition – remained seated or stood up from his chair and started speaking to the participant: "I have observed your performance and would like to give you a couple of pointers". The performance feedback delivered, which was developed with the coaches, was clear, concise, and focused specifically on three key aspects of the LSPT. The feedback was worded to ensure it was a natural response that was relevant to all situations and players irrespective of their performance (Van Kleef, Homan, et al., 2010). The content of the feedback was exactly the same for all participants regardless of the condition they were in. The script was: a) "think of your *decision making* – consider using an open body angle to 'scan the area' and foresee your next pass"; b) "think of the *control* of the ball - consider the (surface) area you control the ball and the weight of your touch"; and, c) "think of your *passing* – consider the weight of your pass and the area of your foot".

As noted, the performance feedback given was intended to be a natural response to players' performance. This interaction further enabled the manipulation of the emotional expressions to be a coach's realistic and genuine emotional response to player's performance (Bänziger & Scherer, 2010). The manipulation of the emotional expressions utilised the distinct and universally recognized nonverbal facial or bodily expressions associated with the respective emotions. In the pride condition, the coach stood up straight with an upright posture while delivering the feedback, tilted his head up slightly, had his chest expanded, shoulders back and displayed a small smile occasionally extending his arms away from the body (Tracy et al., 2009). For the shame condition, the coach tilted his head downward, lowered his eye gaze, and held his posture slumped with his chest narrowed inward and shoulders slumped forward, and remained seated with his arms limp (Keltner, 1995; Tracy et al., 2009).

Coaches initially received a description of their role in the experiment, the verbal performance feedback, and the nonverbal components to express pride and shame. Coaches were then extensively trained how to convey the feedback in a natural and consistent manner across conditions and regardless of how a player performed. Coaches were further taught how to express pride or shame. Part of the training involved reviewing what not to express (e.g., a large smile). After this, they learned how to display the emotions whilst giving the feedback. First, this was done in isolation. At the end, the coach fully engaged with his role in the experiment. This training ensured that coaches knew exactly how and when (only) to interact with a player after their first performance in the passing test.

To reduce the possibility of bias, the coach (who was blind to the experimental hypotheses) remained blind to the experimental condition until just before the start of the first passing test. The first experimenter remained blind to the experimental conditions throughout the experiment as he focused on organising the measures to be completed by the participant immediately after receiving feedback from the coach.

1.1.3. Measures

1.1.3.1. Manipulation check. Feedback quality. In line with the purpose of the study, participants completed a measure to rate the advice/feedback they received (Koning & Van Kleef, 2015). Including this measure aimed to obscure the focus of the study (it drew participants' attention to the verbal performance feedback they received). It also enabled checking whether the performance feedback given was consistent in each condition. On a 7-point semantic differential scale ranging from 1 *(useless)* to 7 (*useful*), participants rated how useful, appropriate, effective, and supportive the feedback was ($\alpha = 0.93$; cf. Feng & MacGeorge, 2010).

Coaches' emotions. To assess the effectiveness of the coaches' emotional expression manipulations, participants were further asked to rate how "*proud/ashamed*" the coach was on a 7-point Likert scale ranging from 0 (*not at all*) to 6 (*extremely*). These focal items were part of a longer list of emotion items (see Supplemental file 1).

1.1.3.2. Players' emotions. Similar to previous research, participants' emotions were assessed by combining process and outcome measures of emotional contagion (e.g., Visser et al., 2013). Participants were asked to rate how they felt: "Immediately after the feedback and going into the second test" … Pride was assessed with four items (the coach made me feel proud/confident; I felt proud/confident; $\alpha = 0.77$). Shame was assessed with two items (the coach made me feel ashamed; I felt ashamed; $r_{sh} = 0.81$, Eisinga et al., 2013). Again, these items were part of a longer list of items (see Supplemental file 1).

1.1.3.3. Players' performance. Following the guidelines of Ali et al. (2007), performance on the LSPT consisted of three outcome measures: a) original time; b) penalty time; and, c) performance time (original time + penalty time). The original time was the time taken to complete the 16 passes. This was determined from the moment the participant made contact with the ball to make their first pass until the last pass made contact with the target area. Penalty time involved any errors due to poor control or inaccurate passing and was calculated based on the following errors: 5s for missing the bench completely or passing to the wrong bench; 3s for missing the target area; 3s for handling the ball; 2s for passing the ball from outside of the designated area; 2s if the ball touched any cone; and, 1s was deducted from the total time if the ball hit the 10-cm strip in the middle of the target. Originally, Ali et al. (2007) used one experimenter with a stopwatch to record the original time and a second experimenter to view all four target areas to determine the penalty time. To improve the accuracy of assessing performance, both original and penalty time were determined through a frame-by-frame analysis of participants' performance recordings (using NacSport Elite).

1.2. Results

Means, standard deviations, and 95% confidence intervals of the manipulation check variables, players' emotions and players' performance across the two conditions are displayed in Table 1. Unless otherwise stated, data met the assumptions of normality and homogeneity of variance ($p > .05$). We performed independent *t*-tests on the manipulation check variables and players' emotions. For each

Table 1
The means, standard deviations, and 95% confidence intervals for all outcome variables pre-manipulation and post-manipulation across the two conditions in Experiment 1.

	Pride						Shame					
	Pre-manipulation			Post-manipulation			Pre-manipulation			Post-manipulation		
	M	*SD*	95% CI	*M*	*SD*	95% CI	*M*	*SD*	95% CI	*M*	*SD*	95% CI
Coach emotion												
Pride[a]				3.36	.63	[2.83, 3.88]				1.79	1.19	[1.26, 2.31]
Shame[a]				.14	.36	[-0.36, 0.65]				1.21	1.25	[0.71, 1.72]
Quality of feedback[a]				5.77	.69	[5.26, 6.28]				4.75	1.12	[4.24, 5.26]
Player emotion												
Pride[a]				3.73	.68	[3.25, 4.22]				2.16	1.05	[1.67, 2.65]
Shame[a]				.89	1.00	[0.23, 1.56]				1.82	1.40	[1.15, 2.49]
Performance												
Original time	43.87	4.49	[41.06, 46.68]	43.32	5.02	[40.77, 45.87]	43.03	5.67	[40.23, 45.84]	43.18	4.24	[40.63, 45.73]
Penalty time	22.93	10.60	[17.34, 28.52]	15.07	8.42	[9.99, 20.15]	11.86	9.74	[7.07, 17.08]	17.14	10.01	[12.06, 22.22]
Performance time	66.80	9.77	[61.76, 71.85]	58.39	7.24	[53.67, 63.11]	54.89	8.55	[50.38, 59.31]	60.32	9.77	[55.60, 65.05]

Note. CI = Confidence interval. The performance variables are presented in seconds.
[a] These variables were only measured post-manipulation.

performance variable, a 2 × 2 mixed ANOVA was performed with emotional expression as between-subjects factor and time as within-subjects factor.

1.2.1. Manipulation check

Feedback quality. For feedback quality, the data was somewhat negatively skewed (*ZSkewness* = 2.62). Interestingly, even though the performance feedback was the same for every participant across the conditions, participants in the pride condition perceived the feedback from the coach to be of significantly higher quality than those in the shame condition ($M_{diff.} = 1.02$, $d = 1.09$, $t\,(26) = 2.89$, $p = .008$).

Coaches' emotions. Clear evidence emerged that the emotion manipulations were successful. Participants in the pride condition perceived the coach as significantly more proud ($M_{diff.} = 1.57$, $d = 1.65$, $t\,(19.8) = 4.37$, $p < .001$) and less ashamed ($M_{diff.} = -1.07$, $d = 1.16$, $t\,(15.17) = -3.08$, $p = .008$) than participants in the shame condition (both Cohen's $d > 0.8$ suggesting a large effect; Cohen, 1988). There were no differences between conditions for any other emotion items except for players perceiving the coach as happier in the pride condition (see Supplemental file 1).

1.2.2. Players' emotions

Participants in the pride condition felt significantly more proud ($M_{diff.} = 1.57$, $d = 1.77$, $t\,(26) = 4.70$, $p < .001$) and less ashamed ($M_{diff.} = -0.93$, $d = 0.76$, $t\,(26) = -2.02$, $p = .05$) than participants in the shame condition. Except for players feeling happier in the pride condition, there were no differences between conditions in any other emotion items (see Supplemental file 1).

1.2.3. Players' performance

For original time, there were no significant effects for time ($F_{1,\ 26} = 0.05$ $p = .82$, $\eta_p^2 = 0.002$), condition ($F_{1,\ 26} = 0.09$, $p = .77$, $\eta_p^2 = 0.003$), or the interaction ($F_{1,\ 26} = 0.15$, $p = .70$, $\eta_p^2 = 0.006$). For penalty time, there was no significant effect for time ($F_{1,\ 26} = 0.51$, $p = .48$, $\eta_p^2 = 0.02$) or condition ($F_{1,\ 26} = 1.98$, $p = .17$, $\eta_p^2 = 0.07$), but there was a significant interaction ($F_{1,\ 26} = 13.21$, $p = .001$, $\eta_p^2 = 0.34$). While participants in the pride condition reduced their penalty time significantly ($t_{13} = 3.48$, $p = .004$), penalty time increased for those in the shame condition, albeit not significantly ($t_{13} = -1.87$, $p = .08$). Using the change scores in penalty time, an independent *t*-test revealed that participants in the pride condition had a significantly lower penalty time compared to participants in the shame condition, which corresponded to a large effect ($M_{diff.} = 13.14$, $d = 1.37$, $t\,(26) = 3.63$, $p = .001$). For performance time, there was no significant effect for time ($F_{1,\ 26} = 0.54$ $p = .47$, $\eta_p^2 = 0.02$), or condition ($F_{1,\ 26} = 3.47$, $p = .07$, $\eta_p^2 = 0.12$), but there was a significant interaction ($F_{1,\ 26} = 11.61$, $p = .002$, $\eta_p^2 = 0.31$). While participants in the pride condition reduced their performance time significantly ($t_{13} = 3.19$, $p = .007$), performance time increased for those in the shame condition, albeit not significantly ($t_{13} = -1.76$, $p = .10$). Using the change scores in performance time, an independent *t*-test revealed that participants in the pride condition had a significantly lower performance time compared to those in the shame condition, corresponding to a large effect ($M_{diff.} = -13.84$, $d = 1.28$, $t\,(26) = 3.41$, $p = .002$).

1.2.4. Mediation analyses

We explored whether players' emotions could explain the effects of coaches' expressed emotions on players' performance (see Supplemental file 2 for a detailed overview of the mediation analyses). The mediation analyses (PROCESS, model 4, Hayes, 2013) revealed no significant indirect effects for pride or shame on the three performance variables as all percentile bootstrap confidence intervals (based on 10,000 samples) for the indirect effect contained zero. However, when entered together in a parallel mediation, coaches' emotional expressions indirectly influenced penalty time via players' pride ($ab = -6.44$, CI [-15.86, -0.28]) but not shame ($ab = 2.90$, CI [-0.20, 7.75]). Players who received feedback from the coach displaying pride felt significantly more proud than those receiving feedback from the coach displaying shame, and those players feeling more proud made fewer errors on the passing test. Expressed pride still led to less penalty time independent of its effect through players' pride and shame ($c' = -9.60$, $p = .048$).

1.3. Discussion

The results of Experiment 1 suggest that coaches' nonverbal expressions of pride and shame while delivering feedback influenced players' emotions and performance. First, as predicted, players who received feedback from their coach displaying pride felt significantly more proud and less ashamed than those who received feedback from their coach displaying shame. In addition, players who interacted with their coach displaying pride significantly improved their performance while those who interacted with their coach displaying shame did not. Consequently, the display of pride led to significantly better performance on the passing test than the display of shame. These observed differences were primarily due to the amount of errors players made with players significantly reducing their errors when their coach expressed pride. These findings are noteworthy because they provide the first experimental evidence for the effects of coaches' emotional expressions of pride and shame on players' emotions and performance. The results further showed that there was a significant indirect effect of coaches' emotional expressions on players' performance via players' pride but not players' shame. That is, compared to players observing

their coach displaying shame, players who observed their coach displaying pride felt more proud, and, in turn, made fewer errors. This suggests that coaches' emotional expressions may impact on players' performance partially through influencing players' emotions.

Though the observed effects on players' emotions and performance corresponded to a large effect size, these findings are novel and require replication. Furthermore, the study left several questions unanswered. That is, were the differences between the conditions driven by the beneficial effects of the coaches displaying pride, the deleterious effects of the coaches displaying shame, or both? Moreover, another positive emotion frequently displayed by coaches is happiness (Van Kleef et al., 2019). Including happiness would allow exploring whether pride and happiness have different interpersonal effects on players' emotions and performance (e.g., Van Kleef, De Dreu, & Manstead, 2010). Further, although using players' actual coaches was arguably a strength of the study because it increased its ecological validity, it is plausible that the coach-player relationship may have influenced the interpersonal effects of the coaches' emotional expressions. Finally, players' emotions were assessed after the second passing test to minimise players' awareness of their emotional states. Though players' emotions reflected differences induced by the emotional displays, these emotions may have been partially influenced by players' perceptions of how well they performed on the second passing test.

2. Experiment 2

Study 2 was designed to address and provide additional insights into the unanswered questions. To accomplish this, we added a control condition in which the coach displayed a neutral expression, and a condition in which the coach displayed happiness. To account for the coach-player relationship, the coaches used were confederates who held no prior relationship with the players. As players might use the emotional expressions to infer information regarding the unknown coach's ability (Van Kleef, 2009), we assessed players' perceptions of the coach's expertise. To better assess whether players' emotions underpinned the effects of coaches' emotional expressions on players' performance, players' emotions were also assessed at baseline pre-manipulation (before performing the first passing test) and post-manipulation (before performing the second passing test).

Based on the results in Experiment 1, we predicted that coaches' emotional expressions would evoke the expressed emotions in players. Further, we predicted that players would perform better after receiving feedback from coaches expressing pride compared to a shame or a neutral expression. Given the observed benefits of coaches' expressed happiness for player performance (Van Kleef et al., 2019), superior performance was expected for displayed happiness relative to a shame or a neutral expression. With the novelty of comparing coaches' expressions of pride and happiness, no predictions regarding their differential effects on players' performance were made. Considering the findings in Experiment 1, we again explored whether there was an indirect effect of coaches' expressed emotions on players' performance via players' emotions.

2.1. Method

2.1.1. Participants and Design

A convenience sample of 60 skilled male football players (M_{age} = 19.35 years, SD = 1.13) averaging 11.83 years (SD = 3.05) of competitive playing experience was recruited for the study. All participants were required to be male, have a minimum of 5 years playing experience, compete at club level or above, and be playing under a coach. Participants currently competed at club (n = 56), county/regional level (n = 1) or national level (n = 3), and varied in playing position (goalkeeper, n = 5; defender, n = 19; midfielder, n = 30; attacker, n = 6). Participants rated their passing and dribble ability on average as 6.77 (SD = 1.00) and 6.22 (SD = 1.46) respectively. On a scale from 1 (*not at all*) to 7 (*extremely*), they rated how important it was for them to perform well on the task. The average of 6.17 (SD = 0.85) suggested that it was very important for players to do well. There were no significant differences between conditions in relation to any of these variables.

The study used a 4 × 2 factorial design with emotional expression (pride, shame, happiness or neutral expression) as between-subjects factor and time (pre- and post-manipulation) as within-subjects factor. The sample size was based on an a-priori power analysis (G-power version 3.1; Faul et al., 2007) entering a medium effect size (f = 0.25) with power set at 0.80, an alpha of .05 and a correlation of 0.5 among the repeated measures to detect a 4 × 2 interaction effect. The power analysis generated a minimum sample size of n = 48, with 12 participants in the between-subjects conditions. The final sample comprised 60 participants with fifteen participants in each experimental condition.

2.1.2. Procedure

The procedure in Experiment 2 was identical to Experiment 1 except for the following: After institutional ethics committee approval, participants were recruited for an experimental study that examined "the influence of coaches' verbal and nonverbal feedback on male football players in football passing task". As part of the overview of the set-up in the testing area, players were informed that the coach was a former graduate in coaching science and currently working for one of the local professional football clubs (cf. Van Kleef, Homan, et al., 2010). In reality, the coach was a confederate scripted to provide the verbal feedback and express the nonverbal emotional expressions according to one of the four experimental conditions. After the practice trial, participants were asked to fill out a measure of the emotions they experienced in relation to the impending passing test (T1, pre-manipulation). They then performed the passing test for the first time. After the coach had given feedback displaying one of the four emotional expressions (*see Manipulation of coaches' emotional expressions section*), participants were asked to complete a measure that assessed their perception of the feedback and the coach, and rated their emotions in relation to the second passing test (T2, post-manipulation). Participants then performed the passing test for the second time after which they rated the emotions they experienced immediately after receiving the feedback from the coach (T3).

Manipulation of coaches' emotional expressions. The roles of the experimenters and the confederate remained fully scripted. The confederate was one of three actual coaches (M = 23.7 years, SD = 0.22; all had an FAW 'C' certificate) who were all unknown to the players. Coaches wore the same coaching kit to avoid it influencing players' perceptions (Greenlees et al., 2008). The feedback delivered was the same as in Experiment 1, as were the expressions of pride and shame. For the happiness expression, the coach stood up straight smiling frequently with the corners of his mouth up, a cheerful look and made use of arm movements when delivering the feedback (Van Kleef, Homan, et al., 2010). For the neutral expression, the coach maintained a non-emotional stance with a relaxed posture, no smiling, head straight, and his shoulders loose with little to no arm movement (Furley et al., 2015).

2.1.3. Measures

2.1.3.1. Manipulation check. ***Feedback quality.*** Using the same four items as in Study 1, participants rated the quality of the advice/feedback they received (α = 0.73).

Coaches' emotions. Besides rating how "*proud/ashamed*" the coach was, participants rated how "*happy*" the coach was on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*extremely*). Again, these items were part of a longer list of items (see Supplemental file 1).

2.1.3.2. Coaches' expertise. Participants were asked to rate how "*competent/knowledgeable*" the coach was with two items on a 7–point Likert scale ranging from 1 (*not at all*) to 7 (*extremely*) (cf. Van Kleef,

Homan, et al., 2010).

2.1.3.3. Players' emotions. Participants' feelings of happiness, pride, and shame were assessed immediately prior to performing the first and second passing test. Using the happiness subscale of the Sport Emotion Questionnaire (Jones et al., 2005), happiness was measured with four items (cheerful, happy, joyful, and pleased: first test, $\alpha = 0.85$; second test, $\alpha = 0.88$). Pride was measured with four items (accomplished, successful, achieving, and fulfilled: first test, $\alpha = 0.76$; second test, $\alpha = 0.80$) that loaded highest on the achievement related State Authentic Pride subscale of the Pride Scale by Tracy and Robins (2007). Only items of the authentic pride subscale were used given the achievement context. Participants' shame was assessed with the same 1-item measure. For all items, participants indicated how they feel *right now, at this moment, in relation to the upcoming passing task* on a 7-point Likert scale ranging from 1 (*not at all*) to 7 (*extremely*). These items were part of a longer list of items (see Supplemental file 1).

After the second passing test, participants rated how proud, ashamed and happy they felt: "Immediately after the feedback and going into the second test, the coach made me feel.; I felt …" proud ($r_{sh} = 0.82$), happy ($r_{sh} = 0.80$), ashamed ($r_{sh} = 0.89$). These items were part of a longer list of items (see Supplemental file 1).

2.2. Results

Descriptive statistics of the manipulation check, coaches' expertise, players' emotions and performance are displayed in Table 2. Unless otherwise stated, data met the assumptions of normality and homogeneity of variance ($p > .05$).

2.2.1. Manipulation check

We performed one-way ANOVAs with emotional expression as between-groups factor on the manipulation check variables.

Feedback quality. There was no significant difference in the perceived quality of the feedback between the four emotional expression conditions ($F_{3, 56} = 0.26$, $p = .86$).

Coaches' emotions. There was a significant effect of the coaches' emotional displays on participants' perception of coaches' happiness ($F_{3, 56} = 7.75$, $p < .001$). Planned contrasts revealed that participants in the happy condition rated the coach as significantly happier than participants in the neutral condition ($M_{diff.} = 1.53$, $d = 1.23$, $t(56) = 3.26$, $p = .002$) and the shame condition ($M_{diff.} = 2.00$, $d = 1.58$, $t(56) = 4.26$, $p < .001$). No significant difference was observed between the happy and pride condition ($M_{diff.} = 0.47$, $t(56) = 0.99$, $d = 0.35$, $p = .33$). There was a significant effect of the coaches' emotional displays on participants' perception of coaches' pride ($F_{3, 56} = 5.88$, $p = .001$). Planned contrasts revealed that participants in the pride condition rated the coach as significantly more proud than participants in the neutral condition ($M_{diff.} = 1.60$, $d = 1.72$, $t(56) = 3.87$, $p < .001$) and the shame condition ($M_{diff.} = 1.20$, $d = 1.07$, $t(56) = 2.90$, $p = .005$). No significant difference was observed between the pride condition and the happy condition ($M_{diff.} = 0.53$, $d = 0.45$, $t(56) = 1.29$, $p = .20$). For shame, the Levene's test revealed unequal variances across the conditions ($F_{3,56} = 8.42$, $p < .001$). However, given the robustness of ANOVA to this violation when group sizes are equal (Field, 2009), we decided to run the one-way ANOVA. This revealed a significant effect of the coaches' emotional displays on participants' perception of coaches' shame ($F_{3, 56} = 5.68$, $p = .002$). Planned contrasts revealed that participants in the shame condition rated the coach as significantly more ashamed than participants in the neutral condition ($M_{diff.} = 1.00$, $d = 0.77$, $t(26.3) = 2.11$, $p = .045$), the pride condition ($M_{diff.} = 1.40$, $d = 1.27$, $t(18.1) = 3.48$, $p = .003$) and the happy condition ($M_{diff.} = 1.2$, $d = 1.15$, $t(19.1) = 2.93$, $p = .009$). Cohen's d effect sizes were nearly all pointing at a large effect ($d > 0.8$, Cohen, 1988) suggesting the emotion manipulations were largely successful. Though not significant, the observed differences of perceived happiness and pride between the happy and pride condition were in the expected direction and reflected a small-to moderate effect. Except for players perceiving the coach as more cheerful and satisfied in the pride and happy condition compared to the shame condition, there were no differences between conditions for any other emotion items (see Supplemental file 1).

2.2.2. Coaches' expertise

One-way ANOVAs revealed no significant differences between conditions regarding participants' perception of how competent ($F_{3, 56} = 0.04$, $p = .99$) and knowledgeable ($F_{3, 56} = 0.73$, $p = .54$) the coach was.

2.2.3. Players' emotions

For each emotion, a 4 × 2 ANOVA with emotional expression as between-groups factor and time as within-subjects factor was performed. Given the robustness of ANOVA (Field, 2009), this was done even when there was a violation of homogeneity of variances at pre-manipulation for pride ($F_{3, 56} = 4.10$, $p = .01$), shame ($F_{3, 56} = 2.89$, $p = .04$), and happiness ($F_{3, 56} = 3.28$, $p = .03$). For pride, there was no significant main effect for time ($F_{1, 56} = 0.002$ $p = .96$, $\eta_p^2 = 0.00$), and no significant interaction ($F_{3, 56} = 1.35$, $p = .27$, $\eta_p^2 = 0.07$). There was a significant effect for condition ($F_{3, 56} = 4.29$, $p = .01$, $\eta_p^2 = 0.19$). Pairwise comparisons with a Bonferroni correction revealed that participants in the shame condition experienced less pride pre- and post-manipulation than those in the pride condition ($p = .02$). For shame, there was a significant main effect for time ($F_{1, 56} = 7.33$, $p = .009$, $\eta_p^2 = 0.12$) with participants becoming more ashamed post-manipulation. There was no significant main effect for condition ($F_{3, 56} = 0.75$, $p = .53$, $\eta_p^2 = 0.04$) and no significant interaction ($F_{3, 56} = 0.15$, $p = .93$, $\eta_p^2 = 0.01$). For happiness, there was a significant main effect for time ($F_{1, 56} = 5.51$ $p = .022$, $\eta_p^2 = 0.09$) with participants becoming less happy post-manipulation. Despite a significant main effect for condition ($F_{3, 56} = 2.92$, $p = .04$, $\eta_p^2 = 0.14$), pairwise comparisons with Bonferroni correction showed no significant differences between conditions. More importantly, there was no significant interaction effect ($F_{3, 56} = 2.12$, $p = .11$, $\eta_p^2 = 0.10$). There were no differences between conditions for any other emotion items except for players feeling less tense in the happy condition than the shame condition (see Supplemental file 1).

One-way ANOVAs were conducted to determine whether players' emotions measured after the second passing test differed between conditions. There was a significant effect of the coaches' emotional expressions on players' pride ($F_{3, 56} = 3.32$, $p = .03$, $\eta_p^2 = 0.15$). Pairwise comparisons with a Bonferroni correction revealed that compared to participants in the shame condition, those in the happy condition felt significantly more proud ($M_{diff.} = 1.30$, $p = .04$, $d = 1.07$). So did those in the pride condition but this was only marginally significant ($M_{diff.} = 1.20$, $p = .07$, $d = 0.82$). There was no significant effect of the coaches' emotional expressions on participants' shame ($F_{3, 56} = 1.39$, $p = .26$, $\eta_p^2 = 0.07$). There was a significant effect of the coaches' emotional expressions on players' happiness ($F_{3, 56} = 3.72$, $p = .02$, $\eta_p^2 = 0.17$). Pairwise comparisons with a Bonferroni correction revealed that compared to participants in the shame condition, those in the happy condition ($M_{diff.} = 1.37$, $p = .03$, $d = 1.16$) felt significantly happier while those in the pride condition were happier but this was only marginally significant ($M_{diff.} = 1.27$, $p = .05$, $d = 0.98$). There were no differences between conditions for any other emotion items (see Supplemental file 1).

2.2.4. Players' performance

For each performance variable, a 4 × 2 ANOVA with emotional expression as between-groups factor and time as within-subjects factor was performed. For original time, there was a significant main effect for time ($F_{1, 56} = 27.41$ $p < .001$, $\eta_p^2 = 0.33$). Overall, participants performed the passing task quicker post-manipulation than pre-manipulation; although this was not evident for those in the shame condition (See

Table 2
The means, standard deviations, and 95% confidence intervals for all outcome variables pre-manipulation and post-manipulation across the four conditions in Experiment 2.

Variable	Time-point	Pride				Happiness				Neutral				Shame			
		M	*SD*	95% CI		*M*	*SD*	95% CI		*M*	*SD*	95% CI		*M*	*SD*	95% CI	
				LL	*UL*			*LL*	*UL*			*LL*	*UL*			*LL*	*UL*
Coach emotion																	
Pride[a]	T2	3.67	.98	3.12	4.21	3.13	1.36	2.38	3.88	2.07	.88	1.58	2.56	2.47	1.25	1.78	3.16
Shame[a]	T2	1.20	.56	.89	1.51	1.40	.63	1.05	1.75	1.60	1.12	.98	2.22	2.60	1.45	1.79	3.40
Happiness[a]	T2	3.87	1.40	3.09	4.65	4.33	1.29	3.62	5.05	2.80	1.21	2.13	3.47	2.33	1.23	1.65	3.02
Quality of Feedback	T2	4.87	.83	4.40	5.33	5.10	1.23	4.42	5.78	4.77	1.05	4.19	5.35	5.00	1.30	4.28	5.72
Coach perception																	
Competence[a]	T2	4.93	1.03	4.36	5.51	5.00	1.20	4.34	5.66	5.00	1.25	4.31	5.69	4.87	1.30	4.15	5.59
Knowledge[a]	T2	5.20	1.15	4.57	5.83	5.27	1.10	4.64	5.90	4.67	1.23	4.04	5.30	5.07	1.39	4.44	5.70
Player emotion																	
Pride	T1	4.57	.51	4.11	5.04	4.43	.92	3.96	4.89	3.73	1.18	3.27	4.20	3.91	.86	3.44	4.37
	T2	4.64	.99	4.13	5.15	4.37	.79	3.87	4.88	4.09	1.09	3.59	4.60	3.51	1.02	3.00	4.01
Happiness	T1	4.50	.54	3.98	5.02	4.00	1.06	3.48	4.52	3.88	1.25	3.37	4.40	4.03	1.03	3.52	4.55
	T2	4.42	1.03	3.87	4.97	4.08	1.05	3.53	4.64	3.40	.94	2.85	3.95	3.23	1.23	2.68	3.79
Shame	T1	1.27	.59	.92	1.61	1.33	.82	.99	1.68	1.07	.26	.72	1.41	1.40	.83	1.06	1.74
	T2	1.47	1.06	1.00	1.93	1.73	.80	1.27	2.20	1.47	.74	1.00	1.93	1.73	.96	1.27	2.20
Pride[b]	T3	3.77	1.27	3.11	4.21	3.87	.97	3.21	4.52	3.27	1.35	2.61	3.92	2.57	1.43	1.91	3.22
Happiness[b]	T3	4.13	1.27	3.47	4.80	4.23	1.03	3.57	4.90	3.47	1.47	2.81	4.13	2.87	1.30	2.21	3.53
Shame[b]	T3	1.43	.62	.92	1.95	1.73	.88	1.22	2.25	1.73	1.08	1.22	2.25	2.17	1.26	1.65	2.68
Player performance																	
Original time	T1	50.10	5.62	47.64	52.57	51.18	5.19	48.72	53.65	52.32	3.65	49.85	54.78	51.76	4.34	49.29	54.22
	T2	47.53	4.15	45.19	49.88	48.04	4.08	45.70	50.39	49.20	4.93	46.86	51.55	51.37	4.91	49.03	53.72
Penalty time	T1	18.53	9.20	14.24	22.82	19.40	8.02	15.11	23.69	16.13	8.74	11.84	20.42	13.27	7.08	8.98	17.56
	T2	11.93	7.73	7.61	16.25	15.27	6.60	10.95	19.59	23.47	7.65	19.15	27.79	23.27	10.83	18.95	27.59
Performance time	T1	68.63	10.50	63.58	73.69	70.58	9.94	65.53	75.65	68.45	10.67	63.39	73.50	65.02	7.68	59.97	70.08
	T2	59.47	9.70	54.51	64.42	63.31	8.50	58.35	68.27	72.67	10.25	67.71	77.62	74.64	9.80	69.68	79.60

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit; T1 = Pre-manipulation; T2 = Post-manipulation; T3 = Post-manipulation and post 2nd passing test.
[a] These variables were only measured post-manipulation.
[b] These variables were measured post-manipulation, after the second passing test.

Table 2). There was no significant main effect for condition ($F_{3,\ 56}$ = 1.18, p = .32, η_p^2 = 0.06), and no significant interaction ($F_{3,\ 56}$ = 2.20, p = .10, η_p^2 = 0.11). For penalty time, there was no significant main effect for time ($F_{1,\ 56}$ = 1.51, p = .22, η_p^2 = 0.03), no significant effect for condition ($F_{3,\ 56}$ = 1.29, p = .29, η_p^2 = 0.07), but a significant interaction ($F_{3,\ 56}$ = 9.43, p < .001, η_p^2 = 0.34). Follow up paired t-tests revealed significant improvements in penalty time for participants in the pride condition ($M_{diff.}$ = 6.60, d = 0.78, t (14) = 3.32, p = .005) while no changes in penalty time were observed in the happy condition ($M_{diff.}$ = 4.13, d = 0.56, t (14) = 1.43, p = .17). Penalty time became significantly worse in the neutral condition ($M_{diff.}$ = −7.33, d = 0.87, t (14) = −2.71, p = .02) and the shame condition ($M_{diff.}$ = −10.00, d = 1.09, t (14) = −3.30, p = .005). Using the change scores in penalty time, a one-way ANOVA revealed significant differences in penalty time between conditions ($F_{3,56}$ = 9.43, p < .001, η_p^2 = 0.34). Bonferroni pairwise comparisons revealed that penalty time for participants in the pride condition improved significantly more than for those in the neutral ($M_{diff.}$ = −13.93, p = .003, d = 1.52) and shame condition ($M_{diff.}$ = −16.60, p < .001, d = 1.67). Also, penalty time for participants in the happy condition became significantly better than for those in the neutral ($M_{diff.}$ = −11.47, p = .02, d = 1.05) and the shame conditions ($M_{diff.}$ = −14.13, p = .003, d = 1.23). No other significant differences in penalty time were observed (p > .05). For performance time, there was no significant main effect for time ($F_{1,\ 56}$ = 0.21 p = .65, η_p^2 = 0.004), no significant effect for condition ($F_{3,\ 56}$ = 2.09, p = .11, η_p^2 = 0.10), but a significant interaction ($F_{3,\ 56}$ = 10.14, p < .001, η_p^2 = 0.35). Follow up paired t-tests revealed significant improvements in performance time for participants in the pride condition ($M_{diff.}$ = 9.17, d = 0.91, t (14) = 4.74, p < .001) and happy condition ($M_{diff.}$ = 7.27, d = 0.79, t (14) = 2.48, p = .03). No changes in performance time were observed in the neutral condition ($M_{diff.}$ = −4.22, d = 0.40, t (14) = 1.31, p = .21) while performance time became significantly worse in the shame condition ($M_{diff.}$ = −9.62, d = 1.09, t (14) = 3.09, p = .008). Using the change scores in performance time, a one-way ANOVA revealed significant differences in performance time between conditions ($F_{3,\ 56}$ = 10.14, p < .001, η_p^2 = 0.35). Bonferroni pairwise comparisons revealed that performance time for participants in the pride condition became significantly better than for those in the neutral ($M_{diff.}$ = −13.39, p = .009, d = 1.24) and shame condition ($M_{diff.}$ = −18.78, p < .001, d = 1.87). Also, performance time for participants in the happy condition became significantly better than for those in the neutral ($M_{diff.}$ = −11.49, p = .04, d = 0.93) and shame conditions ($M_{diff.}$ = −16.89, p = .001, d = 1.44). No other significant differences emerged (p > .05).

2.2.5. Mediation analyses

We again explored whether players' emotions mediated the effect of coaches' expressed emotions on players' performance. A series of multicategorical mediation analyses using indicator coding (Hayes & Preacher, 2014) revealed no significant relative indirect effects for any of the emotions on the three performance variables as all percentile bootstrap confidence intervals (10,000 samples) for the indirect effect contained zero (for a detailed overview of the mediation analyses, see Supplemental file 2). Thus, coaches' emotional expressions did not influence players' performance via players' emotions.

2.3. Discussion

The results of Experiment 2 provide further evidence that the emotions displayed by coaches whilst delivering feedback can influence players' performance. First, displayed pride led to significantly better performance compared to a shame or neutral expression. Consistent with Experiment 1, these performance differences were mainly due to players making significantly fewer errors. Further, expressed shame was at best, no worse than the neutral expression for players' performance. Specifically, players performed worse when coaches displayed shame as indicated by a significant increase of errors made in the passing test. However, their performance was not significantly worse than when coaches displayed a neutral expression. These results suggest that players' performance differences between the pride and shame conditions in Experiment 1 were mainly driven by the beneficial effects of coaches' displayed pride. Further, as hypothesized, displayed happiness benefitted players' performance relative to coaches displaying shame or a neutral expression. There was little evidence to suggest that displayed pride and happiness had differential effects on players' performance as there were no significant performance differences between the two conditions. Players in the pride condition did significantly reduce their errors in the second passing test while those in the happy condition did not.

Surprisingly, and in contrast to the findings of Experiment 1, there was little support for coaches' emotional expressions to evoke similar emotions in players and no evidence that coaches' emotional expressions influenced players' performance via their emotions. Players did feel significantly happier and more proud in the happy and pride condition compared to those in the shame condition, but this was only observed after the second passing test. One explanation is that emotional expressions are more likely to influence observers' emotions via, for example, affective reactions when there is a strong social or task-related connection between expresser and observer (Hess & Fischer, 2013; Van Kleef, De Dreu, & Manstead, 2010). Since the coach was unknown to the players, they might not have felt socially close to him, fully trusted him, or considered he shared their goal of performing well on the passing test. That said, the expressed emotions of these unknown coaches did not influence players' perceptions of coaches' expertise (Van Kleef, De Dreu, & Manstead, 2010). Instead, fitting with the introductory story, players generally rated the coaches as highly competent and knowledgeable.

3. General discussion

In two experiments, this study examined whether football coaches' nonverbal emotional expressions displayed when delivering feedback influenced players' emotions and performance. It further explored whether players' emotions played a role in the effects of coaches' emotional expressions on players' performance. Across both experiments, we found strong effects for coaches' emotional expressions on players' performance. There was also evidence that coaches' emotional expressions influenced players' emotions but this seemed to be coach-player relationship dependent.

First, as predicted, the findings showed that coaches' expressions of pride and happiness were beneficial for players' performance. These findings corroborate recent field studies revealing positive links between coaches' expressions of happiness and sports performance (Van Kleef et al., 2019) and add to a growing body of research demonstrating interpersonal benefits of displayed pride and happiness in cooperative sports (e.g., Moll et al., 2010; Totterdell, 2000) and other performance contexts (e.g., Visser et al., 2013). Importantly, these findings provide the first experimental evidence that coaches' expressions of pride and happiness can enhance players' performance. Second, our findings revealed that there was, at best, no effect of expressed shame on players' performance. Thus, even though researchers have indicated that displayed shame may elicit a positive behavioural change in observers (Welten et al., 2012), the present findings suggest no immediate benefits for coaches' displays of shame. These findings are largely in line with previous work demonstrating null- or negative interpersonal effects of shame expressions on cooperative observers in sport (Furley et al., 2015; Moll et al., 2010).

The findings provided partial support for our hypothesis that coaches' emotional expressions would evoke similar emotions in players. In Experiment 1, the display of pride by their coach caused players to feel proud (and happy) and, displayed shame led players to feel ashamed. Thus, players indeed seemed to experience similar emotions to those expressed by their coach. In Experiment 2, however, there was less evidence that unknown coaches caused players to feel their

expressed emotions. These findings clearly show that coaches can influence players' emotions (e.g., Thelwell et al., 2017; Van Kleef et al., 2019); and that the strength of the expresser-observer relationship may be an important factor for interpersonal emotion transfer to occur, with emotions spreading more readily when coaches are more closely linked to players (e.g., Hess & Fischer, 2013; Parkinson, 2011). Experiment 1 further suggests that coaches' expressed pride not only directly benefited players' performance but also indirectly through promoting players' pride. This finding adds to previous research revealing that observers' emotions may play a role in the emotional expression-observers' performance link in cooperative contexts (Van Kleef et al., 2019; Visser et al., 2013).

In line with the EASI theory and this previous research, it seems plausible that coaches' emotional expressions influenced players' emotions via affective reactions such that players caught coaches' emotions. That said, as indicated by Van Kleef et al. (2019), we recognize that inferential processes are likely to have played a role in shaping players' emotions and performance. With the passing test making it difficult for players to estimate their performance, players may have used the coach's expression as a source of information to gauge how they performed. For example, players may have inferred from the display of pride or happiness that they did well influencing their feelings and subsequent performance. Furthermore, it is perhaps these inferential processes that led players to feel less tense prior to their second test after feedback from a coach displaying happiness relative to players receiving feedback from a coach displaying shame.

Regardless of whether affective reactions and/or inferential processing fuelled the effects on players' emotions and performance, clear performance differences emerged on the football passing test. In both experiments, displayed pride benefitted players such that they made fewer errors on the test. One explanation is that players who felt proud and/or thought that their coach valued their performance, were motivated to invest more (mental) effort in the second passing test. Indeed, researchers have suggested pride drives individuals' motivation when experienced or observed in response to a recognized achievement (Williams & DeSteno, 2008). For happiness, performance improvements seemed to result from making fewer errors and performing the task quicker. While the observed happiness may have been motivating, it could also be that players' movement became more fluent allowing for a quicker execution of the task (Vast et al., 2010). Seeing that expressed happiness reduced players' tension the most prior to the second passing test aligns with this. In contrast, even though the experience or display of shame might have prompted players to adjust their behaviour (Beall & Tracy, 2020), it led players to make more errors on the test. To make amends, players may have focused their attention internally, consciously trying to control their movement execution; which for skilled performers may hinder the automaticity of the movement and result in more errors (Beilock & Gray, 2007). Alternatively, it may have led to a fear of failure resulting in tension, a disrupted focus and potential disengagement from the task (Hofseth et al., 2017). Notwithstanding these speculative comments, future research is warranted to examine whether these processes indeed play a role in explaining the effects of coaches' emotional expressions on players' performance.

In line with the EASI theory, the present research provides evidence that displays of pride, happiness, and shame can exert substantial interpersonal effects on observers. However, as expressed pride and happiness had comparable effects on players' emotions and performance, our findings seemed to contradict the notion that distinct positive emotions can have unique interpersonal effects (Van Kleef, De Dreu, & Manstead, 2010), at least in coach-player interactions. One explanation for this finding is that players' ratings of coaches' pride and happiness were fairly similar when coaches' displayed pride (or happiness). It could be that observers found it difficult to distinguish between the distinct expressions of pride and happiness when they listened to the feedback of the coach. This fits with previous emotion recognition findings for these emotions (Furley et al., 2015; Wallbott, 1998). Still, compared to displayed shame, only displayed happiness led to players feeling less tense. Also, as much as displayed pride and happiness were equally beneficial for players' performance, these effects may have emerged through different processes (Tracy, 2014); i.e. only displayed pride significantly reduced players' errors on the second passing test. Further, if our findings could merely be explained by general positivity and negativity, one would have expected that expressed shame would have made players feel less relaxed, more anxious, angry, or any other negative emotion compared to expressed pride or happiness, but this was not the case. As such, there appears greater nuance to the effects of these discrete emotional expressions than the simple notion that positive expressions are good and negative expressions are bad. Nevertheless, clearly more research is needed to better understand the interpersonal effects of discrete (positive) emotions in coach-player interactions.

Overall, the interpersonal effects of coaches' nonverbal expressions of pride, happiness and shame on players' emotions and performance have important practical implications for coach-player interactions in sports and other performance domains. In particular, they reinforce the importance of coaches to be aware of the emotions they experience and display when they provide feedback to their players; to understand the effects of these emotional expressions on their players; and, to regulate their emotions in such a way that they evoke an adaptive response in players. To this end, coaches could be educated how to manage and utilise specific emotions (expressions) to foster optimal outcomes. Our findings demonstrate the power of expressing pride and happiness in enhancing player performance in contrast to shame. While these recommendations have merit for coaches in general, our findings indicate that they may have particular merit when coaches hold a strong relationship with their players. For example, within high-level performance environments, coaches often develop a trusting relationship with their athletes and spend a lot of time with them. In this context, coaches may need to be especially aware of the impact their displayed emotions can have on players. Coach education programmes could play a pivotal part in helping coaches understand how their emotional expressions can influence players' emotions, thoughts, and performance.

We belief that the present research has some notable strengths and weaknesses. First, we consider the experimental designs a strength. Both experiments allowed us to draw causal conclusions regarding the interpersonal effects of coaches' emotional expressions by systematically manipulating the nonverbal expressions associated with the emotions of interest. Further, the inclusion of a control condition in Experiment 2 permitted accounting for the effects of feedback alone. Another strength is that in both experiments, we created an ecologically valid setting that closely resembled a coach-player interaction in training or competition with a coach giving face-to-face feedback in response to a player who had just performed a football passing test. This differs from previous laboratory experiments that have used pre-recorded messages of a leader displaying an emotion (e.g., Van Kleef et al., 2009). A further strength of the study was that the findings were obtained with players' actual coaches and coaches unknown to them, which enabled controlling for existing coach-player relationships and disentangling the differential effects on players' emotions.

Despite these strengths, it is important to acknowledge the limitations of the study. First, we assessed players' emotions but not players' inferences in response to coaches' emotional expressions. As such, it is unknown what players inferred from the coach's emotional response to their performance. Even so, it is possible that their inferences regarding the reason and meaning of the emotional expressions differed from what was intended (Van Kleef, 2009). Therefore, future studies should incorporate affective and inferential processes to understand how players interpret the emotion expressed and disentangle the relative contribution of each process in shaping players' emotions and performance. Second, despite measuring players' emotions after the passing test in Experiment 1 and prior to each passing test in Experiment 2, these self-reported emotions may not quite have captured the immediate emotional response to the displayed emotions. Therefore, researchers

may consider adding non-obtrusive facial and behavioural recordings to measure players' immediate emotional responses (e.g., Barsade, 2002). Third, while both experiments were carefully designed and showed robust findings in relation to players' performance, we acknowledge that the sample sizes in both experiments were fairly small. Consequently, the power of the experiments was insufficient to detect small-to moderate-sized effects and the reported effect sizes may be inflated (Schweizer & Furley, 2016). In this respect, it is promising that the findings of the present study are in line with experimental- and field studies observing effects of pride, shame and happiness expressions on players' emotions and performance (Furley et al., 2015; Van Kleef et al., 2019). Nevertheless, future studies are needed to demonstrate the reproducibility of our findings. Finally, researchers have argued that the interpersonal effects of emotional expressions on observers depend on factors relating to the situation. Admittedly, in real-world (high--pressure) situations, the emotions displayed by a coach might be more intense than those expressed in the inevitably contrived experiments. Especially when coaches have no opportunity to provide verbal feedback, emotional expressions might be a critical source of information for players (e.g., side-line behaviour). Future research could examine the effects of coaches' emotional expressions of coaches in such environments.

In conclusion, the present study advances the literature by providing the first experimental evidence of the interpersonal effects of coaches' emotional expressions on players' emotions and performance. The results showed that coaches' emotional expressions influenced players' emotions particularly when players held a close relationship with the coach. Regardless of this relationship, the coach's display of pride or happiness when delivering feedback enhanced players' performance. The display of shame had, at best, no effect on players' performance. Therefore, it is essential coaches manage their emotions when providing performance feedback as it could have a significant impact on players' subsequent performance.

CRediT author contribution statement

Tjerk Moll: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing - original draft, Writing - review & editing. **Gemma Louise Davies:** Methodology, Software, Writing - review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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