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Factors associated with final attempts during counterattacks in Champions League 2018-2019 matches

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Abstract

Introduction. Although counterattacks are the most effective style of play for scoring goals, they occur less frequently during soccer matches than organized attacks and the research on the subject conducted to date is limited. Aim of Study. This study sought to investigate factors associated with final attempts during counterattacks in Champions League 2018--2019 matches. Material and Methods. The sample included 1415 ball recoveries corresponding to 16 knock-out matches. Multidimensional qualitative data using 11 ordered categorical variables were obtained to characterize each counterattack. The data were analysed using chi-squared tests and binary logistic regression. Results. Bivariate analysis revealed that the performance indicators significantly associated with the final attempt in a counterattack included the defenders' positions, invasive zone, number of passes, counterattack duration and zone of recovery. Spatial analysis revealed that final attempts from counterattacks were most frequently assisted from the central zone outside the box (Zone 7: 23%) and finishing was typically executed from the central zone inside the box (Zone 4: 30.4%). The regression model indicated significant probabilities of a final attempt when the ball was recovered inside the invasive zones, used a high proportion of penetrative passes and involved 4 or more attacking players. Conclusions. This study enhances coaches' understanding of the factors that affect counterattack effectiveness and provide practical implications for developing and implementing training sessions for the transition phase.

KEYWORDS: soccer, transition phase, effectiveness, goal scoring.

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Introduction

Soccer matches have been documented as having four key repeating phases: the attacking phase, defensive transition, defensive phase and attacking transition [21]. These phases have a dialectic relationship between the opposing teams, meaning that when one team is in the attacking phase, the other team is in the defensive phase, etc. Moreover, although the four phases are discrete, each can affect the other phases or elements of play [9]. A team's habitual behaviour in each of these four phases can be described as the team's game style. Hewitt et al. [21] defined game style as "the characteristic playing pattern demonstrated by a team during games. It will be regularly repeated in specific situational contexts such that measurement of variables reflecting game style will be relatively stable". Consequently, when a team recovers the ball, there are two styles of play it may adopt: possession play or counterattack, depending on the team's strategy [8] and the opposition's performance and tactics [25].

Although transition phases and, particularly, counterattacks have been the focus of many influential head coaches, such as Jurgen Klopp and Jose Mourinho, the research concerning these elements is limited. For example, Klopp describes the transition game in a way that characterizes his philosophy: "The best moment to win the ball is immediately after your team just lost it.

The opponent is still looking for orientation where to pass the ball. He will have taken his eyes off the game to make his tackle or interception and he will have expended energy. Both make him vulnerable" [5]. Similarly, Mourinho stated, "Everybody says that set plays win most games, but I think it is more about transitions" [44]. Previous research identified the importance of transition phases; surprisingly, however, more studies have been conducted on defensive transitions [7, 11].

Although counterattacks occur less frequently during soccer matches than organized attacks, they are the most effective style of play for scoring goals, especially against an imbalanced defence [35, 41]. Recently Schulze et al. [36] found similar results and added that counterattacks were characterized by there being fewer defenders behind the ball and were more physically demanding than organized and direct attacks.

Existing research consistently indicates that teams tend to recover the ball closer to their own goal; thus, the most frequent locations of ball recovery are the defence and pre-defence zones in Champions League 2011--2012 [1], Champions League 2014-2015 [22], English Premier League and Spanish La Liga [11] matches. However, when considering effectiveness previous research found a strong relationship between regaining the ball in attacking zones and positive attack outcomes [11, 17, 22].

The conflicting results reported by previous studies on recovery type could arise from methodological differences. In particular, some studies have shown that interception was the most common type of ball recovery [1], while others reported more recoveries through tackles [4, 22].

In a recent study Gonzalez-Rodenas et al. [18] concluded that counterattacks in Major League Soccer (MLS) had a higher frequency of short possession (3 or fewer passes), while attacking sequences involving medium possession (4-6 passes) had greater odds of creating final attempts. Likewise, Turner and Sayers [42] noticed that transition speed was not related to effectiveness, suggesting that offensive transitions need not be fast or concern short sequences to be successful. Instead, the length of the sequence should be adapted to the tactical conditions imposed by the opponent. Moreover, many studies to date have highlighted the importance of penetrative actions, especially at the beginning of the counterattack [17, 22].

Previous studies identified the number of participating players as another key performance indicator during counterattacks. During Champions League matches, Armatas et al. [3] showed that most of the goals achieved via counterattacks involved ≥3 attackers. Similarly, Turner and Sayers [42] indicated that successful transitions were associated with the participation of 1-3 attacking players, while Tenga et al. [41] showed that counterattacks were more effective than elaborate attacks when playing against an imbalanced defence in the Norwegian League. Defensively, Gonzalez-Rodenas et al. [17] showed that playing against a low initial number of opponents (≤3) increased the effectiveness of creating scoring opportunities in recoveries for the Spanish national football team during the 2010 World Cup. During counterattacks in MLS [18], researchers concluded that the presence of a meso-group of defenders (4-6) increased the probability of conceding a scoring opportunity compared to a macro-group of defenders (≥7).

Existing studies in performance analysis have commonly used bivariate statistical analysis to discover whether relationships exist between two variables. However, using multivariate analysis in this study allowed us to analyse different factors of match performance that are typically difficult to measure directly, as well as their interdependency. Logistic regression analysis has been used infrequently to analyse match performance in soccer [19, 20].

Although previous research identified the importance of counterattack play style on both match outcome and attack effectiveness, the conducted literature analysis reveals few studies on counterattacking and its components. Therefore, this study aimed to investigate factors associated with final attempts during counterattacks in Champions League 2018-2019 knock-out matches.

Material and Methods

Sample

For this study, 16 of the 29 knock-out matches of the Champions League 2018-2019 were randomly selected.

Table 1. Classification of ball recovery based on the subsequent possession

	N	%
Organized attack	828	58.5
Counterattack	185	13.1
Mixed attack	143	10.1
Tactical foul	69	4.9
Possession lost	190	13.4
Total	1415	100

Only the top 16 European teams participated in the final stage, which reduced the impact of the competitive level [30]. Extra-time was also excluded from the sample to ensure homogeneity of the matches. During the selected matches the teams performed 1463 ball recoveries. A total of 48 cases were omitted due to action replays, leaving 1415 recoveries for analysis.

The selected ball recoveries were classified as one of five categories (Table 1) based on their subsequent possession: 1) Organized attack: Possession begins by winning the ball in play or restarting the game; this kind of possession allows the opponent more opportunity to minimize surprise, reorganize their system, and be prepared defensively; the progression towards the opponent's goal can be combinative (high percentage of non-penetrative and short passes over a long duration) or direct (long pass, evaluated qualitatively) [24, 41]. 2) Counterattack: Possession begins by winning the ball in play; the first or second player in action uses penetrative passes or dribbles to penetrate; the progression towards the opponent's goal has a high percentage of penetrative passes over a short duration (evaluated qualitatively); this type of possession tries to deny the opponent the opportunity to minimize surprise, reorganize their system, and be prepared defensively [24, 41]. 3) Mixed attack: Possession starts by winning the ball in play and combines the previous two types; it starts with the characteristics of a counterattack, but the opponent's reorganization can make the progression towards the opponent's goal combinative (a high percentage of non--penetrative and short passes over a long duration) or direct (long pass, evaluated qualitatively). 4) Tactical foul: An intentional violation of the rules of the game, occurring within 5 seconds, to interrupt the opponent's action (this kind of rule violation can be considered an "illegal" move within the game; that is, it is a violation with in-game consequences such as penalties, free kicks, or yellow cards) [23]. 5) Possession lost: Possession starts by winning the ball in play or restarting the game; the attacking team loses possession of the ball when the receiving player fails to control the ball for 3 or more touches or cannot attempt a subsequent ball distribution [37].

Procedures

Before data collection, the Bioethics Committee of the School of Physical Education and Sport Science at the National and Kapodistrian University of Athens granted ethical approval for this study. The selected matches were downloaded from the Wyscout platform (Wyscout Spa, Italy) and analysed with Lince software [13]. Lince is a multimedia interactive computer software that enables simultaneous viewing and registering of the filmed match to support the observational analysis and has been used in many investigations [27].

Observational instrument and operational definitions

The study design included the analysis of four independent defensive performance indicators: 1) recovery type, 2) defenders' position, 3) number of defenders, and 4) initial pressure, and seven independent offensive performance indicators: 1) invasive zone, 2) passes, 3) penetrative passes, 4) number of attackers, 5) duration, 6) half pitch, and 7) pitch sector. The possession result, "final attempt" or "no final attempt", was used as a dependent variable. Operational definitions of the selected indicators are provided in Table 2. Moreover, every shot and assist before every shot were labelled according to the area of the field where they occurred.

Table 2. Operational definitions for the observational instrument

Indicator	Definition
Recovery type	1) Steal: A defending player prevents the ball passed by an opponent from reaching its intended receiver by contacting the ball and maintaining his team's possession of the ball [4]. 2) Duel: A defending player dispossesses an opponent of the ball through a physical challenge or defensive pressure [4, 33]. 3) Turnover: A defending player collects the ball lost (via clearance or a missed pass) by the opposing team [15]. 4) GK action: The goalkeeper recovers the ball after an opponent's shot, cross, turnover, etc. [4].
Defenders' position	Opponents' position on the field when team possession starts, omitting the goalkeeper: 1) High: The furthest-back opponent is in the opposing half. 2) Medium: The furthest-back opponent is closer to the midline than to their own goal. 3) Low: The furthest-back opponent is closer to their own goal than the midline [18].
Number of defenders	The number of defending players located between the ball and their goal when possession starts: 1) 1-2, 2) 3-4, or 3) ≥6.
Initial pressure	1) Pressure: One or several opposing players pressure the attackers within the first 3 seconds of the possession – the defender(s) are always located within 1.5 meters of the first attackers. 2) No pressure: No player pressures the attackers during the first 3 seconds of the possession [18].

Invasive zone	The area within the opponent's space of defensive occupation (SDO) where team possession starts [38]: 1) Non-invasive: Possession starts between the medium area of the opponent's SDO and their own goal line. 2) 1st zone: Possession starts within the medium area of the opponent's SDO. 3) 2nd zone: Possession starts between the medium area of the opponent's SDO and the opponent's goal line.
Passes	Passes performed by attacking players during team possession: 1) zero, 2) 1-2, 3) 3-4, or 4) ≥5.
Penetrative passes	Percentage of passes that passed defending player(s) in relation to the total number of passes during team possession: 1) zero, 2) 1-33%, 3) 34-66%, or 4) 67-100%.
Number of attackers	The number of attacking players that actively participated during their team's possession: 1) 1-2, 2) 3-4, or 3) ≥6.
Duration	Seconds that the team possession lasts: 1) 1-5 seconds, 2) 6-11 seconds, or 3) ≥12 seconds.
Half pitch	The half of the playing field where team possession starts: 1) defensive half, or 2) offensive half.
Pitch sector	The sector of the playing field where team possession starts: 1) defensive, 2) pre-defensive, 3) pre-offensive, or 4) offensive.
Result	1) Final attempt: The attacking team has a clear opportunity to score during possession. This includes goals, shots on target, and shots off target. 2) No final attempt: The attacking team has no chance to score during possession.

The field was divided into 10 zones (Figure 1) based on Rathke's [31] study on the expected goals metric.

Reliability

To ensure the intra- and inter-reliability of the observational instruments, two expert analysts were tested using a 21-day test-retest protocol to exclude any learning effects with 20% of the data, as recommended by Tabachnick and Fidell [40]. The observers were trained in the use of the observational instruments following Losada and Manolov's [26] protocols. Kappa's coefficient was calculated for each variable, with mean kappa statistics of $\kappa = 0.93$ and $\kappa = 0.90$ classified as "perfect" intra- and inter-observer agreement, respectively [32].

Statistical analysis

The statistical analyses were conducted in IBM SPSS v. 26.0 (IBM Corp., USA). First, a chi-squared test of independence (χ^2) was used to examine the possible differences between the counterattacks with a final attempt and those without a final attempt. The effect size was estimated by calculating Phi (for 2 × 2 comparisons) and Cramer's V (for more than two comparisons) correlation coefficients, considering small ($\varphi = 0.10$, $V = 0.05$), medium ($\varphi = 0.30$, $V = 0.15$) and large ($\varphi = 0.55$, $V = 0.25$) effects [12]. χ^2 was also used to examine whether there was a difference between zones leading to final attempts after counterattacks.

Finally, a binary logistic regression was performed to explore the influence of the studied performance indicators on the odds of final attempts. The model thus constructed included 10 performance indicators as predictors and the dichotomous "Result" as the predicted (dependent) variable. The backward Wald method was used and all assumptions of binary logistic regression were met [40]. The theoretical model tested is shown below:

Final attempt $f_{(x)} = \alpha + \beta_1$ (defenders' position) + β_2 (number of defenders) + β_3 (invasive zone) + β_4 (initial pressure) + β_5 (recovery type) + β_6 (passes) + β_7 (penetrative passes) + β_8 (number of attackers) + β_9 (duration) + β_{10} (half pitch) + ε.

Results

Of the 185 counterattacks examined, 106 resulted in no final attempt and 79 in final attempt, of which 19 (10.3%) resulted in goals. Table 3 shows descriptive statistics and the χ^2 values for the studied performance indicators. In detail, "Defenders' position" ($\chi^2 = 6.884$, $p = 0.032$), "Invasive zone" ($\chi^2 = 15.100$, $p = 0.001$), "Passes" ($\chi^2 = 8.721$, $p = 0.033$), "Duration" ($\chi^2 = 14.826$, $p = 0.001$), "Half pitch" ($\chi^2 = 11.875$, $p = 0.001$) and "Pitch sector" ($\chi^2 = 13.398$, $p = 0.004$) were significantly associated with the final attempt from counterattack.

Counterattacks in Champions League knock-out matches resulted in final attempts more frequently when they were taken against defenders in medium positions (39.2%), started inside the 1st invasive zone (38%), had 1-2 and 3-4 passes (38%), were of medium duration s(6-11 seconds) (45.6%), and the ball was recovered in the defensive half of the pitch (54.4%), specifically, in the pre-offensive pitch sector (39.2%).

Significant differences were observed between assisting zones ($\chi^2 = 15.397$, $p < 0.05$) and final attempt zones ($\chi^2 = 17.231$, $p < 0.05$). Specifically, spatial analysis, shown in Figure 1, indicated that final attempts from

Table 3. Frequency and percentage of counterattacks with and without final attempts during Champions League 2018-2019 matches

		Total N = 185		NFAtt N = 106		FAtt N = 79		
Indicators	Dimensions	N	%	N	%	N	%	χ^2(df), p
Defenders' position	low	42	22.7	17	16.0	25	31.6	$\chi^2(2) = 6.884$, p = 0.032 V = 0.195
	medium	88	47.6	57	53.8	31	39.2	
	high	55	29.7	32	30.2	23	29.1	
Number of defenders	1-3	45	24.3	23	21.7	22	27.8	$\chi^2(2) = 2.435$, p = 0.296
	4-5	92	49.7	52	48.1	40	51.9	
	≥6	48	25.9	32	30.2	16	20.3	
Invasive zone	non-invasive	80	43.2	55	51.9	25	31.6	$\chi^2(2) = 15.100$, p = 0.001 V = 0.295
	1st zone	71	38.4	41	38.7	30	38.0	
	2nd zone	34	18.4	10	9.4	24	30.4	
Initial pressure	pressure	140	75.7	82	77.4	58	73.4	$\chi^2(1) = 0.382$, p = 0.537
	no pressure	45	24.3	24	22.6	21	26.6	
Recovery type	steal	63	34.1	41	38.7	22	27.8	$\chi^2(3) = 2.435$, p = 0.487
	duel	65	35.1	35	33.0	30	38.0	
	turnover	43	23.2	23	21.7	20	25.3	
	GK action	14	7.6	7	6.6	7	8.9	
Passes	zero	7	3.8	2	1.9	5	6.3	$\chi^2(3) = 8.721$, p = 0.033 V = 0.226
	1-2	69	37.3	39	36.8	30	38.0	
	3-4	87	47.0	57	53.8	30	38.0	
	≥5	22	11.9	8	7.5	14	17.7	
Penetrative passes	zero	24	13.0	11	10.4	13	16.5	$\chi^2(3) = 2.065$, p = 0.559
	1-33%	54	29.2	31	29.2	23	29.1	
	34-66%	69	37.3	43	40.6	26	32.9	
	67-100%	38	20.5	21	19.8	17	21.5	
Number of attackers	1-3	109	58.9	68	64.2	41	51.9	$\chi^2(2) = 3.162$, p = 0.206
	4-5	69	37.3	37	34.9	32	40.5	
	≥6	7	3.8	1	0.9	6	7.6	
Duration	1-5"	21	11.4	6	5.7	15	19.0	$\chi^2(2) = 14.826$, p = 0.001 V = 0.307
	6-11"	112	60.5	76	71.7	36	45.6	
	≥12"	52	28.1	24	22.6	28	35.4	
Half pitch	defensive half	126	68.1	83	78.3	43	54.4	$\chi^2(1) = 11.875$, p = 0.001
	offensive half	59	31.9	23	21.7	36	45.6	φ = 0.261
Pitch sector	defensive	36	19.5	21	19.8	15	19.0	$\chi^2(3) = 13.398$, p = 0.004 V = 0.271
	pre-defensive	90	48.6	62	58.5	28	35.4	
	pre-offensive	52	28.1	21	19.8	31	39.2	
	offensive	7	3.8	2	1.9	5	6.3	

Note: FAtt – final attempt, NFAtt – no final attempt, χ^2 – chi-square, p – probability value, φ – phi, V – Cramer's V

counterattacks were most frequently assisted from Zone 7 (23%), while finishing was most frequently executed from Zone 4 (30.4%).

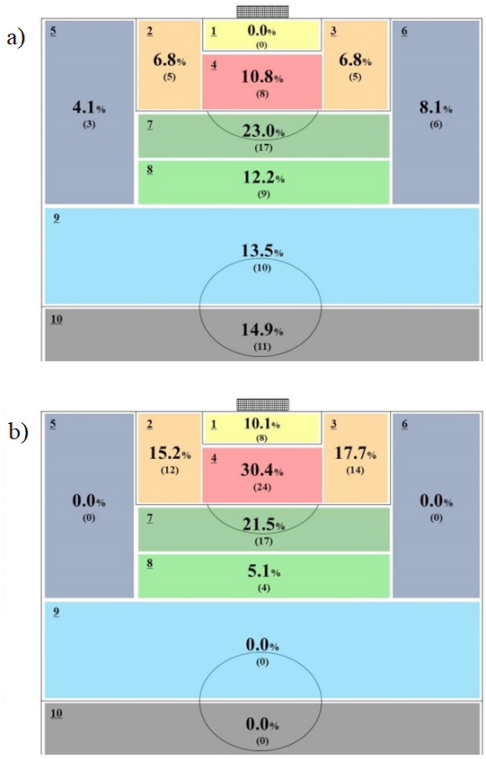

Figure 1. Percentage of total counterattacks in Champions League 2018-2019 matches in relation to the number of: a) assist zone (N = 74) and b) final attempt zone (N = 79)

The regression model showed that "invasive zone", "penetrative passes", and "number of attackers" were significant predictors for final attempts during Champions League knock-out matches (χ^2 = 35.813, p < 0.00011) and accurately predicted 67% (Table 4) of final attempts. The predictive power was moderate (R^2 = 23.7%) (Nagelkerke) and the goodness of fit as analysed by the Hosmer–Lemeshow test was also adequate (HL: $\chi^2(8)$ = = 1.930, p = 0.983).

The coefficients for "Invasive zone" were positive (B = 0.912 and B = 2.402), indicating that the likelihood of a final attempt following a counterattack increased by 2.5 times when possession started within the 1st zone and 11 times when possession started within the 2nd zone compared to starting in the non-invasive zone. The coefficient for "Penetrative passes" was positive (B = 0.567), indicating that an increase of one penetrative pass increased the likelihood by 2 times for a final attempt following a counterattack. Finally, the coefficients for "Number of attackers" were positive (B = 1.077 and B = 4.226), indicating that the likelihood of a final attempt following a counterattack increased 3-fold when 4-5 attackers participated and 68 times when 6 or more attackers participated when compared to 1-3 attackers.

Discussion

This study sought to investigate the factors associated with final attempts during counterattacks in Champions League 2018-2019 knock-out matches. To the best of our knowledge, this is the first study to distinguish the offensive transition phase from counterattacking play styles. The classification of possession after ball recoveries into five categories revealed how teams in Champions League knock-out matches behave after regaining possession. The descriptive results indicated that teams mainly used organized attacks (58.5%) and

Table 4. Logistic regression model based on teams' effectiveness at Champions League 2018-2019

	B	S.E.	Wald	p	OR [C.I.]
Non-invasive zone			19.536	0.000**	
vs 1st zone	0.912	0.396	5.307	0.021*	2.490 [1.146-5.411]
vs 2nd zone	2.402	0.543	19.535	0.000**	11.044 [3.807-32.042]
Penetrative passes	0.567	0.260	4.754	0.029*	1.763 [1.059-2.936]
Number of attackers: 1-3			9.644	0.008**	
vs 4-5	1.077	0.496	4.723	0.030**	2.937 [1.112-7.761]
vs ≥6	4.225	1.406	9.030	0.003**	68.386 [4.347-1,075.90]
Constant	−1.399	0.588	5.660	0.017*	0.247

*p < 0.05, **p < 0.01
Note: B – estimated coefficient, S.E. – standard error, p – probability value, OR – odds ratio, C.I. – confidence interval

less frequently counterattacked (13.1%), which agrees with the findings of Yi et al. [45], suggesting that the teams that qualified for the knock-out phase of the Champions League were better at retaining possession than non-qualified teams. A less-detailed categorization was adopted in a study by Gonzalez-Rodenas et al. [17], who examined how the Spanish national team created scoring opportunities during the 2010 World Cup. Thus, after each ball recovery resulting in a scoring opportunity the authors used the variable "type of progression" to classify the subsequent attacking sequence as "elaborate attack" or "counterattack".

Moreover, the identification of mixed attacks and tactical fouls was a novel finding of this study, although both occurred less frequently among the five categories. Mixed attacks, after organized attacks, constituting the greatest proportion, may imply the technical and tactical ability of the teams competing in the Champions League knock-out phase, which could adapt their style of play to the situation in each game. Although tactical fouls were present during competitive matches at all levels, to the best of our knowledge they have not been included in match analysis studies so far. Ole Gunnar Solskjaer stated before Manchester United's match against Manchester City, "We have got to be ready for their pressing… when we win it (the ball) we have got to be ready for their aggression… They are not going to allow us easy counterattacking because there will be fouls…" [43]. Furthermore, in a recent survey study on injuries the participants were asked to provide an assessment of foul plays and the respondents identified tactical and professional fouls [14]. More studies are needed in this area to generate comparable results on how teams progress after regaining possession and, especially, if and how they use tactical fouls in the transition phase.

The descriptive results revealed how elite teams that competed in the knock-out phase of the Champions League utilized counterattacks. Regarding the defensive indicators, teams used medium defensive positioning with 4-5 defending players and the possession started in non-invasive zones with initial pressure. In contrast, Gonzalez-Rodenas et al. [18] found that MLS teams used advanced defensive positioning and 7 or more defenders without initial pressure. The authors found similar results concerning invasive zones, supporting the finding that possession started in non-invasive zones. Regarding the offensive performance indicators, teams stole the ball to recover possession, used 3-4 passes, of which 34-66% were penetrative, with 1-3 attacking players, for a duration of 6-11 seconds, and possession started in the defensive half, specifically, in the pre-defensive sector. These results are in line with previous studies [18, 22] in terms of the type, half, and pitch sector of recovery and the number of passes. Likewise, Fleig and Hughes [10] argued that successful counterattacks in the 2002 World Cup lasted between 10 and 15 seconds and consisted of 4-8 actions. Armatas et al. [3] discovered that the majority of counterattacks in the Champions League involved 2-3 attacking players. Contrarily, Gonzalez-Rodenas et al. [18] found that MLS teams presented a higher proportion of penetrative passes during counterattacks. Moreover, the results of the bivariate analysis showed that the performance indicators associated with counterattack success were the defenders' position, invasive zone, number of passes, duration, recovery half pitch, and pitch sector. These results corroborate Gonzalez-Rodenas et al.'s [18] findings in MLS 2014.

Concerning the assisting and final attempt zones, the results supported the previous findings that teams tend to use central areas outside and inside the box, respectively [16, 39]. Moreover, a significant proportion of assists (14.9%) were taken from the defensive half, referring to long passes before goals were scored. Similarly, Hughes and Lovell [22] stated that starting a transition from a team's own half with a long pass increased the prospect of scoring. Alternatively, although crosses have been found to facilitate a good proportion of goal-scoring opportunities during open play [28, 39], this study found that during counterattacks, wide areas and crosses were used infrequently (left: 4.1%, right: 8.1%). When considering the final attempt zones, there was a higher proportion of final attempts inside the box (73.4%) and central zones (40.5%), as found in previous studies [2, 16].

A key finding of this study is that the likelihood of a final attempt following a counterattack increased when possession started within the opponent's invasive zones compared to starting in the non-invasive zone. The concept of the SDO, which describes the invasive zones, was introduced by Seabra and Dantas [38] based on Grehaigne's previous work. Although SDO enables the spatial modelling of the game based on the organizational structure of the opposing team's defence, few researchers have used this observational system. Gonzalez-Rodenas et al. [18] argued that starting in the invasive zone registered higher probabilities of conceding a scoring opportunity in MLS than starting in the non-invasive zone. In a later study on MLS the same authors investigated the effects of organized attacks and counterattacks on the final action in scoring opportunities and found that final attempts derived from

counterattacks started more frequently in invasive zones than organized attacks did [19]. Bondia et al. [6] revealed how Real Madrid and Barcelona create goal-scoring opportunities with a high proportion of ball recoveries in their opponents' invasive zones. The results indicate the importance of starting in the opponent's invasive SDO zones to create final attempts in elite matches.

The multivariate analysis revealed that after regaining possession execution of a high proportion of penetrative passes increased the odds of final attempts. The initial penetrative action seems to play a significant role in the development and effectiveness of a counterattack [29]. More specifically, Gonzalez-Rodenas et al. [20] supported this statement, finding that the first 3 seconds after ball recovery are crucial to increase the chance of a scoring opportunity. Hughes and Lovell [22] found similar results during the Champions League 2014-2015. Likewise, Sarmento et al. [34] conducted interviews with coaches, reporting that "There is a pass, a quick conduction of the ball to a player positioned far ahead. Immediately 6-7 players from the opposing team become completely out of play, and there is a need to make the most out of this brief imbalance we were able to create". These results indicate the importance of taking advantage of the first few seconds after recovering possession to exploit an opponent's defensive imbalance.

Another key finding of this study was that the greater the number of attacking players involved, the higher the odds of executing a final attempt during counterattacks. Turner and Sayers [42] indicated that successful transitions were associated with the participation of 1-3 attacking players, while Armatas et al. [3] found that a majority of counterattacks involved ≥3 attacking players. Similarly, Tenga et al. [41] showed that counterattacks were more effective than elaborate attacks when playing against an imbalanced defence during the Norwegian League. These conflicting results may derive from the different methodologies used in these studies. Although our results are not surprising, as having more attacking players improves the odds of a goal-scoring attempt, the number of defenders is also critical. This study did not examine the defender–attacker ratio during counterattacks, but the bivariate analysis showed that the participation of 4-6 defenders was more likely during final attempts after counterattacks. In a recent study, Freitas et al. [11] found that defensive transitions started with defenders' numerical superiority and were associated with an increase in the opponents' goal-scoring situations.

The following limitations of this study should be noted. Situational variables, such as match location, match status, and opposition level, were not measured and previous studies suggest that these indicators could affect how teams behave during matches. Another limitation is that a specific international league was observed only during the 2018-2019 season. Therefore, the data cannot be generalized to other competitions with different characteristics.

These findings have some practical implications for coaches. First, training drills that are designed to reproduce counterattacks should focus on 1) creating the tactical environment where play starts inside the opponent's invasive zones, 2) quickly changing behaviour to use as many penetrative passes as possible, 3) utilizing 4 or more attacking players, and 4) encouraging assisting and finishing actions inside the central corridor of the pitch, close to the penalty box. Moreover, coaches should consider and train not only the offensive organization, but also defensive positioning and team tactical behaviour during transition phases. Future research should continue to explore transition phases within men's, women's, and youth international soccer, incorporating attacking and defensive indicators and using multivariate statistics to predict success.

Conclusions

Previous studies found that counterattacks were more effective for scoring goals, despite occurring less frequently during soccer matches than organized attacks. Moreover, existing studies in performance analysis have commonly used bivariate statistical analysis rather than multivariate statistics. This study provides novel findings for coaches and managers who need to develop and train more effective playing styles and strategies. This information may suggest that to achieve successful Champions League counterattacks, utilizing recovery inside the opponents' invasive zones, a high proportion of penetrative passes and involving 4 or more attacking players are worthwhile. In the final phase of attack sequences the spatial analysis highlighted how elite teams used the central zones inside and outside the penalty area to assist and finish goal-scoring attempts, respectively.

Conflict of Interests

The authors declare no conflict of interest.

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