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Manchester City's Start of the Offensive Phase: A Lag-Sequential Analysis

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Abstract

Research on the playing patterns of Manchester City, particularly under Pep Guardiola's guidance, is limited. Existing studies do not investigate the associations between the offensive phase's initial actions (interceptions, tackles, defensive behavior followed by a pass) and other elements of the attacking phase, such as pitch space positions (zones) and goals. This study goes beyond subjective observation and applies lag-sequential analysis on Manchester City's 2019-2020 UEFA Champions League group stage matches. Behaviors were recorded using the SoccerEye Observational Instrument and software. The data was analyzed using the Sequential Data Interchange Standard-Generalized Sequential Querier (SDIS-GSEQ) and Microsoft Excel. Of the 417 offensive phase starts, 30.7% began with an interception, 8.2% with a tackle, and 29.5% with defensive behavior followed by a pass. Zone 5 (central mid-defensive sector) had a positive association (z=4.1) with interceptions, while zone 8 (central mid-offensive sector) had a positive association (z=2.67) with defensive behavior followed by a pass. Zones 3 (right defensive sector) and 12 (right offensive sector) showed a positive association with tackles (z=2.96 and z=3.36, respectively). Interceptions (z=-2.61) and defensive behavior followed by a pass (z=-4.46) were inhibited in zone 2. Starting an attack with a tackle may also result in a goal in Lags 7 and 8 (z=2.15, z=2.54, respectively).

Keywords: Attacking in football, Sequential analysis, Manchester City, Soccer

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INTRODUCTION

Ball recovery is not only defined as the foremost aim of the defensive phase, which could be a short or immediate action but also concurrently as the first stage of the attack (Barreira et al., 2014a). Successful ball recovery may result from attacking errors by the attacking team and/or depending on a good performance by the defending team. It is, therefore, crucial to be aware of the opportunities that affect ball recovery patterns, that is, where and how the ball is regained and the impact this has on subsequent patterns of attacking play. In this regard, coaches should be aware of how opposing teams recover the ball and where their players should put extra effort to try and regain possession in a specified match context (Almeida et al., 2014; Barreira et al., 2011; Barreira et al., 2014b).

Match analysis aids in identifying one's team's strengths and weaknesses, which leads to identifying opportunities and areas for improvement respectively (Lago-Peñas et al., 2011). It also helps to identify the opponents' strengths, weaknesses, opportunities, and threats. This is possible by using the necessary collected data to perceive ways how to exploit that team's weaknesses and counter their strengths (Carling et al., 2009). Approximately 1000 activity changes occur during a football match, resulting in a shift in activity every 5.65 seconds (Acar et al., 2008). When analysing offensive actions in football, one should take into consideration the pitch zones, the sectors in which players are enabled to execute actions ending with efficacy, such as a shot on goal or goal, or with no effectiveness, such as losing the ball to an opponent via an unsuccessful pass (Bergier et al., 2008). Additionally, match analysis provides a means of quantifying performance variables (Acar et al., 2008).

Several situational variables influence the complex process of attacking performance. Apropos to this, the behaviours of the players and teams in attacking patterns of play depend at least on four variables, namely, the 'game location' (home or away factor), the 'type of competition,' 'match status' (when teams are winning, drawing or losing), and the 'opponent's quality' (Almeida et al., 2014; Machado et al., 2014). Apart from these variables, Barreira et al., (2014a) argue that the 'size of the pitch' and the 'strengths and weaknesses of the opposition' significantly influence play patterns.

Literature shows ball recovery's importance on the success of attacking play, precisely answering how and in which zones (where) it occurs (Barreira et al., 2014b). Silva et al., (2005) codified eleven football matches from the 2002 World Cup and concluded that, from all the balls recovered, 13% of ball possession ended with a shot on target, 0.6% of which were scored. They suggest that the moments of transition during the match have great significance in football and can play a preponderant part. Additionally, they offer that, after ball recovery, the team's attack should materialise swiftly, thus making it difficult for the opponent to reorganise.

While some authors (Carling et al., 2007; Gómez et al., 2012; Reilly and Gilbourne, 2003) argue that the possibility of success increases when possession is recovered in the defensive and midfield

zones, others (Garganta et al., 1997; Lago-Ballesteros et al., 2012; Tenga et al., 2010) observe higher performance efficiency in possessions recovered in the offensive zones. These studies kindled an interest and curiosity to conduct this study and inspired the second set of hypotheses.

After losing the ball, and inversely, after ball recovery, both teams enter into a transition moment to compete in gaining an advantage in space and time, developing both individual and collective behaviours to create more instability in the opponent's team (when attacking) and to improve their organisation levels (when defending), with players acting upon these factors inside an unpredictable environment that frequently complicates teamwork (Barreira et al., 2014a; Shestakov et al., 2009). Underlining the importance of the transition moments, this study looks at the positive (attacking) transition when testing the second set of hypotheses.

Since the landmark work of Reep and Benajmin (1968), football tactics, such as play patterns, have changed drastically as much research has focused on goal-scoring patterns in numerous football competitions. Approximately 80% of the goals scored in 3213 matches between 1953 and 1968 resulted from a sequence of fewer than four passes (Reep and Benajmin, 1968). Furthermore, the latter observed that a goal is scored from every ten shots. Additionally, the statistical analysis of data on goals scored and the length of passing sequences found a negative binomial distribution (a distinct probability distribution that models the number of successes in a sequence) (Reep and Benajmin, 1968). More recently, Hughes and Franks (2005) found that, in the 1990 and 1994 FIFA World Cup competitions, 84% and 80% of the goals were scored from possessions of less than five passes. Similarly, 80% and 77% of the shots on target resulted from fewer than five passes. This shows that, in the early 1990s, the possession game was not a typical style of play.

A comparison was made between the Spanish, English, and Italian league winners of season 2009-2010, FC Barcelona (then managed by Guardiola), Manchester United, and Inter Milan, which indicated that the following patterns of counterattack play of FC Barcelona (2009-2010) occurred through Ball recovery by disarming, followed by a dribble (Z=2.24). Ball recovery by the goalkeeper's intervention; there is a propensity for the sequence to keep developing on the right side of the pitch in a controlled procedure, executing dribbling (Z=2.47) and ball conduction (Z=2.71). The long pass is associated with the end of the offensive phase without efficacy (Z=2.21). Shots on target were induced by the intervention of the opponent without efficacy (Z=3.32), crossing (Z=2.82), and dribble (Z=3.32) (Sarmento et al., 2011).

With the six-second rule at Barcelona, Guardiola introduced the idea of immediate ball recovery when losing it. He has similarly adopted a counter-pressing model at Manchester City, which directs his team to react as fast as possible by blocking passing lanes for the opposition's player in possession, thus contributing to pressing. Unexpectedly, Segrave et al., (2018) claim Manchester City is most dangerous after losing possession. Few times they lose possession, yet, when they do, they make it difficult to be countered and do their best to find their opponents unbalanced (Segrave et al., 2018). This shows how Guardiola's attack does not exist in a vacuum; it is not a moment on its own but a moment that prepares the team for defending. Guardiola prepares his team when in

possession so that, when they lose possession, they are sufficiently balanced to handle transitions occurring to break through their initial counter-press. Manchester City's ideal counter-press happens when the full-back inverts to crowd the centre area of the pitch, providing more protection to the defensive midfielder, with the two central midfielders drifting laterally more freely. Thus, Manchester City generates enough pressure around the ball carrier, which plans to trigger the opposition's transition attack (Segrave et al., 2018).

This aspect of Guardiola's games was a catalyst for the set hypothesis and has highly influenced the scope of this paper, which analyses and explores Manchester City's regular patterns of play in the attacking phase, more precisely, their start of the offensive phase (BR) during six full matches played by Manchester City in the 2019-2020 UEFA Champions League group stage.

METHOD

Study Design

This multidimensional (observing different criteria), idiographic (one team), follow-up (continuous recording across games), and diachronic (developing and evolving) study (Barreira et al., 2014b; Kerr-Cumbo, 2020; Rees et al., 2011b) specifically focused on 'the start of the offensive phase' - ball recovery with an 'interception' (BRi), ball recovery with a 'tackle' (BRt), and ball recovery with a 'defensive behaviour followed by a pass' (BRp) (Barreira et al., 2013). Explicitly, on account of the dimensions of the collected data, this study applied a funnel-down approach (to reach a specific target), thus leading to further focused aims, as presented here under:

- To identify in which pitch zone/s the ball was recovered the most through 'BRi,' 'BRt,' and 'BRp.'
- To look at the 'goals scored' and how they were related to the variables of 'ball recovery,' more specifically, 'BRi,' 'BRt,' and 'BRp.'

This was done through a lag-sequential analysis which other homogeneous studies in the field applied (Almeida et al., 2014; Barreira et al., 2014a; Barreira et al., 2014b; Kubayi, 2020; Mitrotasios and Armatas, 2014; Sarmento et al., 2011). Accordingly, the hypotheses of this study are given in Tables 8 and 10.

All the data was obtained from the six group-stage games that Manchester City played in the 2019-2020 UEFA Champions League, and this study analysed all the 417 attacks which resulted from 8277 events (Table 1). This study is approved by ethical committee at MCAST.

Table 1. Matches, results, and number of attacks and events observed

Match	Result	Attacks
Manchester City vs. Dinamo Zagreb	2-0	79
Manchester City vs Shaktar Donetsk	1-1	77
Atalanta vs. Manchester City	1-1	68
Dinamo Zagreb vs Manchester City	1-4	68
Shaktar Donetsk vs Manchester City	0-3	64
Manchester City vs Atalanta	5-1	61
Total Attacks		**417**
Total Events		**8277**

Tools for Data Collection and Analysis

Similarly to Barreira et al. (2013a), Barreira et al. (2013b), and Kubayi (2020), this study used InStat, SoccerEye Observational Instrument (Barreira et al., 2013a; Barreira et al., 2013b), SoccerEye Recording Software version 3.2 (Barreira et al., 2013a), Sequential Data Interchange Standard-Generalized Sequential Querier (SDIS-GSEQ) version 5.1.23 (Bakeman and Quera, 2001), and Microsoft Excel version 2104.

Like Kubayi (2020), this study used InStat to obtain the recording of all the six observed and analysed games. The SoccerEye (version 3.2) recording software, a data collection software which is theoretically framed on the SoccerEye Observational Instrument (Barreira et al., 2013b) and based on the updated version of the Organisational model of Soccer (Barreira et al., 2013a) has been used to collect all the 8277 events emerging from the 417 attacks happening in the six matches observed (like Barreira et al., 2014; Kerr Cumbo, 2020; Machado et al., 2014).

Together with a competition stage, match status, match time, and duration of the attack, as per the Organisational model of soccer, SoccerEye made it possible to record data pertaining to 80 different variables, which compose the following seven criteria;

1. Start of Offensive Phase (BR)
2. Development of Defence/Attack Transition-State (DT)
3. Progress of Ball Possession (DP)
4. End of the Offensive Phase (F)
5. Patterns of Pitch Space Position
6. Centre of the Game (CJ)
7. Spatial Patterns of Teams' Interaction (CEI)

SocceryEye made it possible to save all the data in formats that could be read by analysis software such as the Sequential Data Interchange Standard-Generalized Sequential Querier (SDIS-GSEQ version 5.1.23) (Barreira et al., 2013a; Barreira, 2014b) and Microsoft Excel. The SDIS-GSEQ was also used to run the Cohen's Kappa index to test the Intra-rater Reliability (Bakeman and

Quera, 2001; Barreira, et al., 2014a; McHugh, 2012). The results produced in the SDIS-GSEQ were always thoroughly re-analysed through the Microsoft Excel part of the Microsoft Office 365 ProPlus package.

Reliability

The official manual of the 'SoccerEye Observational Instrument of the offensive phase in Soccer' (Barreira et al., 2013a) was rigorously studied and applied. Multiple technical meetings and discussions with several international field experts further supported that. Additionally, discussions with statistics experts at the Malta College of Arts Science and Technology and Muğla Sıtkı Koçman University were held.

Moreover, as a recording system, "SoccerEye v3.2 provides four different recording designs: (i) restrict predefined recording; (ii) restrict free recording; (iii) open predefined recording; and (iv) open free recording" (Barreira et al., 2013b). To acquire further reliability, throughout the data collection procedure, this study utilised the 'restrict predefined recording' (Table 2) attribute. This permitted the observer to choose only the active categories, represented with marked black buttons, as all the inactive categories would become grey. The 'restrict predefined recording' first allows the user to record the situational variables, competition stage, match status, and match time, followed by the behavioural, spatial, and interactional criteria. This limited the possibility of mistakes during data entry.

Table 2. SoccerEye v3.2 Recording Designs (Barreira et al., 2013b)

(i) Restrict recording		
	(i-a) Predefined	(i-b) Free
Command	No command required	"Free input"
Observational instrument	SoccerEye	SoccerEye
Recording guidelines	Predefined recording order: a. Situational variables; b. Criterion 1, 2, 3, or 4; c. Special characters	No recording order
Data format	Multievent	Multievent Event

Data was logged in with a speed of 0,75x (75% of normal match play speed) to ensure that the observer did not miss any detail from the observed matches. Additionally, as proposed by Rees et al. (2011a), the footage was rewound and played again recurrently, ensuring that coding was performed reliably (playback speed rate altered according to the observer's discretion). Two focal points that made this study opt for this software were that compared to the hand notation system, less time is spent in the observation process, and fewer errors are made. This further helped improve the study's reliability (Rees et al., 2011b).

Like Sarmento et al. (2010), this study looked at the intra-rater reliability to define the reliability of a single data collector (McHugh, 2012) and hence the quality of the collected data through the intra-observer agreement, which was substantiated by the Kappa reliability index test. This was

done by utilising two fifteen min. of two random games, that is, the first fifteen min. of the second half (45 min-60 min) of the Dinamo Zagreb vs. Manchester City and the second fifteen min. of the game of Manchester City vs Shakhtar Donetsk. These add up to 30 min (5.5%) from 540 minutes of observed game time. The reliability test result was assessed by 'compute Kappa' on the SDIS-GSEQ software (version 5.1.23) (Bakeman and Quera, 2001). To ensure the intra-rater reliability consistency of the collected data, the Kappa coefficient was calculated for every one of the seven criteria individually and for all the criteria collectively (Casal et al., 2019).

This study referred to McHugh's (2012) Interpretation of Cohen's Kappa (Table 3). Ultimately, as shown in Table 4, three variables, namely, the start of the offensive phase (BR), patterns of pitch space position (zones), and end of the offensive phase (F), having a maximum value of Kappa of 1.00, 0.98, and 0.87 respectively (McHugh, 2012) were used as part of the analysis as they classify as almost perfect (BRs and zones) and strong (Fs).

Table 3. Interpretation of Cohen's Kappa (McHugh, 2012: 279)

Value of Kappa	Level of agreement	% Of Reliable Data
0-.20	None	0-4%
.21-.39	Minimal	4-15%
.40-.59	Weak	15-35%
.60-.79	Moderate	35-63%
.80-.90	Strong	64-81%
Above .90	Almost Perfect	82-100%

Table 4. All categories' results from Compute Kappa in SDIS-GSEQ

	Kappa	**Agreement**	**Maximum value of Kappa**
Start of the offensive phase (BR)	1.00	100%	1.00
Patterns of pitch space position (zones)	0.76	81%	0.98
End of the offensive phase (F)	0.82	99%	0.87
All categories together	**0.86**	**93.3%**	**0.95**

Statistical Analysis

Statistical significance was regulated at '$z \geq 1.96$' and '$p \leq 0.05$' (Bakeman and Quera, 2001; Sarmento et al., 2016). By achieving the Z value (≥1.96), it is granted to find out the strength of the connections between the behaviours and their sequences (Barreira, 2011). When required, a retrospective or prospective viewpoint of plus ten lags subsequent to the primary event (ball recovery) was applied to establish the subsequent pattern/s of attacking play (Bakeman and Gottman, 1986; Sarmento et al., 2016). Data got corrupted when ***match time*** and the ***duration of the attack*** were used; therefore, this study eliminated both variables during analysis.

Alternative and null hypotheses of the same relationships were created to determine whether positive (induces) or negative (inhibits) relationships existed between the tested variables.

RESULTS AND DISCUSSION

Descriptive analysis

The start of the offensive phase is defined as "when the observed team perform a ball recovery, directly or indirectly" (Barreira et al., 2013a). That is divided into defence/attack transition-state (BRi, BRt, BRgk, or BRp), "when the recovery of ball possession occurs in a direct/dynamic way" (Barreira et al., 2013a), and defence/attack transition-interphase (BRst, BRv, BRc, BRgki, BRdb, or BRti), which "is identified by an indirect/static ball recovery" (Barreira et al., 2013a).

This case study, made of 6 matches, covers a total of 417 attacks, including a total of 8277 events with an average of 69.5 starts of the offensive phase (BR) per match. 30.7% (128) of the 417 BR's occurred with a BRi. Another 8.2% (34) were by BRt, 9.6% (40) starts of the offensive phase were by BRgk, and 29.5% (123) by BRp, totalling 325 (78%) 'starts of the offensive phase in a defence/attack transition-state.' The remaining 92 (22%) 'starts of the offensive phase' were in a 'defence/attack transition-interphase,' that is, 2.4% (10) BRst, 2.9% (12) BRv, 4.5% (19) by BRgki, 0.2% (1) by BRdb, and 12% (50) by BRti, with no start of offensive phase starting with a BRc (Table 5).

Table 5. Descriptive report of all the types of the start of the offensive phase/ball possession recovery (BR)

	Acronym	n	Percentage
Starts of the Offensive Phase in a defence/attack transition-state			
Ball Possession **R**ecovery by **interception**	BRi	128	30.7%
Ball Possession **R**ecovery by **t**ackle	BRt	34	8.2%
Ball Possession **R**ecovery by the intervention of the **goalkeeper** in the defensive phase	BRgk	40	9.6%
Ball Possession **R**ecovery by defensive behaviour followed by a **p**ass	BRp	123	29.5%
	Total	**325**	**78.0%**
Starts of the Offensive Phase in a Defence/attack transition-interphase2			
Start/restart the offensive phase	BRst	10	2.4%
Ball possession recovery by opponent's **v**iolation of the laws of the game	BRv	12	2.9%
Ball possession recovery by a **c**orner kick	BRc	0	0%
Ball possession recovery by a **g**oal **ki**ck	BRgki	19	4.5%
Ball possession recovery by a **d**ropped **b**all	BRdb	1	0.2%
Ball possession recovery by **T**hrow-**I**n	BRti	50	12.0%
	Total	**92**	**22.0%**

Start of the Offensive Phase – 1st and 2nd Half

From the 417 ball recoveries observed, 216 occurred in the first half, with the remaining 201 occurring in the second half of the six games. From these ball recoveries, Manchester City had 325 defence/attack transition states, 172 of which occurred in the first half, with the other 153 occurring in the second half. This puts Manchester City's ball recovery at 77.9% defence/attack transition state, which means that Manchester City mostly instantly recovers the ball. As shown in Figure 1

and Table 6, Manchester City have mainly started their offensive phase with a BRi: 128 and a BRp: 123. These two ball recoveries covered 60.2% of all ten types of ball recoveries, thus revealing a pattern in Manchester City's way of recovering the ball. Figure 1 shows the frequency of all ten categories at the start of the offensive phase. Since this study focuses on 'BRi,' 'BRt,' and 'BRp,' Figure 2 shows how these three criteria were adopted over the first and second half of the group games in addition to all the different score lines to contextualise the results in their full temporal actuality.

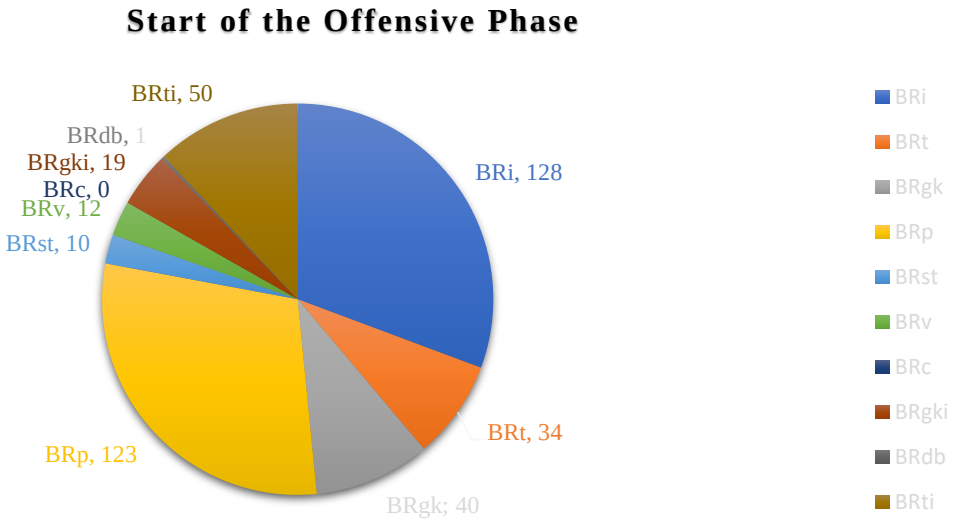

Figure 1. The total frequency of the ten starts of the offensive phase categories

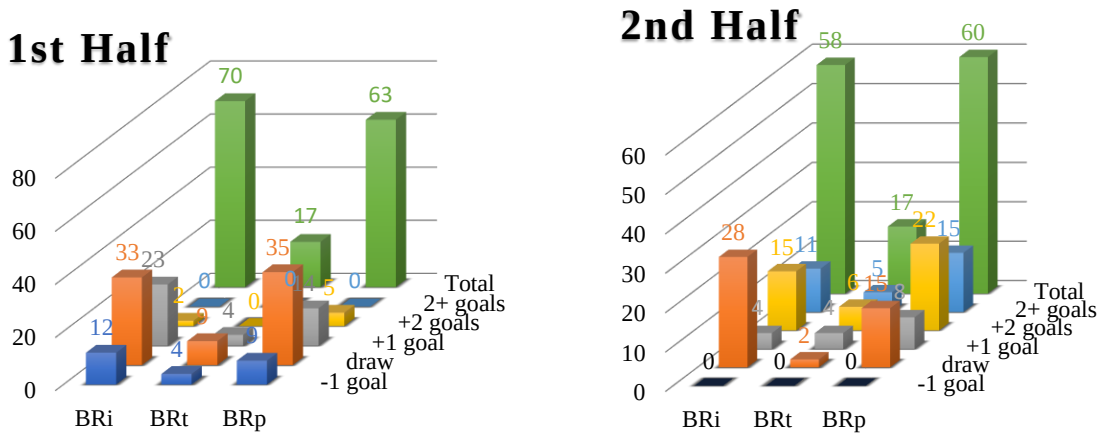

Figure 2. Temporal descriptive statistics of the Start of the Offensive Phase's Ball Recovery by an interception (BRi), tackle (BRt), and defensive behaviour, followed by pass (BRp) in the 1st and 2nd Half

The total 'BRi' and 'BRp' were more frequent in the first half, while the total 'BRt' was equal in both halves. Manchester City never won by more than two goals in the first half, and no 'BRt' occurred when winning by two. A total of 5 and 2 respectively can be noticed for 'BRp' and 'BRi' when winning by two goals. In these six games, Manchester City never lost in the second half, despite only losing for 20 min. In the first half, they managed to recover the ball 12 times through 'BRi,' 9 times through 'BRp,' and four times through 'BRt,' which could be a sign of attacking directly to recover the score quickly. When the score was draw, a +20 differed the first half from the second half in BRp terms, which could be due to Manchester City wanting to pass directly after winning the ball to try and be quick when opponents are unbalanced or unsettled et al., 2018), or to keep possession by 'moving away from traffic.'

Start of the Offensive Phase in Pitch Zones

Of the 417 Manchester City's attacks, 305 (73.1%) started from the defensive half, with the other 112 (26.9%) starting from the offensive half. This puts Manchester City on the high side of starting attacks from the defensive half, especially when compared to the literature studying the 2012-2013 European championship top teams (Mitrotasios and Armatas, 2014), which shows that 43.4% of balls recovered occurred in the defensive half, with the other 56.6% occurring in the opposing half. The hugely significant amount of ball recoveries (73.1%) occurring in the defending half could be a result of their high pressing, where opponents find no solution to play from the back and rather look for long balls, with Manchester City's high defensive backline (Segrave et al., 2018) recovering the ball in their defensive half, and obviously, starting their attack again from their defensive half.

Start of the Offensive Phase – Match Results

As can be noticed in Table 6, it is interesting to highlight that the most significant win (5-1) contained the fewest ball recoveries (61). This could be due to dominating possession (Manchester City had 60% of ball possession); therefore, being superior in ball possession means not losing the ball frequently, thus avoiding having to recover the ball often. The same can be said for the game of Dinamo Zagreb vs. Manchester City (1-4), where Manchester City had 76% of ball possession. The location variable (Almeida et al., 2014; Machado et al., 2014) could have left an impact when drawing away against Atalanta (1-1). Contrarily, Manchester City drew when playing at home against Shakhtar Donetsk, with Manchester City winning two games each home and away. Therefore, the location variable might not have affected Manchester City's results.

Table 6. Frequency of all the ten categories of the start of the offensive phase per match

		Start of Offensive Phase										
Game	**Result**	**BRi**	**BRt**	**BRgk**	**BRp**	**BRst**	**BRv**	**BRc**	**BRgki**	**BRdb**	**BRti**	**Total**
Shaktar Donetsk vs Manchester City	0-3	22	6	4	19	1	1	0	3	0	8	**64**
Manchester City vs Dinamo Zagreb	2-0	22	6	8	28	1	5	0	1	0	8	**79**
Manchester City vs Atalanta	5-1	13	4	6	20	2	1	0	5	0	10	**61**
Atalanta vs Manchester City	1-1	29	3	6	14	2	2	0	4	0	8	**68**
Manchester City vs Shaktar Donetsk	1-1	23	8	9	20	2	1	0	2	1	11	**77**
Dinamo Zagreb vs Manchester City	1-4	19	7	7	22	2	2	0	4	0	5	**68**
		128	**34**	**40**	**123**	**10**	**12**	**0**	**19**	**1**	**50**	**417**
Total Ball Possession Recoveries												**417**
Total Events												**8277**

Start of the Offensive Phase per 15min.

Table 7 presents a temporal overview of the total number of events and ball recoveries occurring in the six matches observed. Considering all six matches together, the first fifteen minutes of the second half produced the highest number of events (1836) and ball recoveries (92). This could be attributed to the effect of the halftime team talk on players (psychologically), change in tactics or players, and/or the players being fresh after a fifteen-minute break (physically). Contrarily, the last fifteen minutes of the games produced the fewest events (870) and ball recoveries (39), perhaps due to tiredness and/or result settlement.

Table 7. The total number of events and ball recoveries per 15 min. of the six analysed Manchester City games

Time of all six matches	Number of Events	Ball recoveries
0:00-15:59 min.	1598	83
16:00-30:59 min.	1398	68
31:00-45:00 min.	1232	65
45:00-60:59 min.	1836	92
61:00-75:59 min.	1343	70
76:00-90:00 min.	870	39

The Association of 'the start of the offensive phase' (BRi, BRt, and BRp) with 'patterns of pitch space position.'

To explore whether the findings satisfy the alternative or null hypotheses, this study analysed all the data generated in SDIS-GSEQ concerning the location on the pitch where Manchester City recovered the ball. Statistical significance was set at $p \leq 0.05$ and $z \geq 1.96$ (Bakeman and Quera, 2001; Sarmento et al., 2016). The 'intra-rater reliability test' was performed, and a 1.00 'maximum

value of Kappa' was recorded for the 'Start of offensive phase' (BR), and a 0.98 'maximum value of kappa' was recorded for the 'Patterns of pitch space position' (zones), as shown in Table 4.

Data made it possible to understand 'the start of the offensive phase,' more specifically, by 'interception' (BRi), 'tackle' (BRt), and 'defensive behaviour followed by a pass' (BRp) from a spatial point of view. This was done by looking at the associations between 'BRi,' 'BRt,' and 'BRp' with the patterns of pitch space position (zones).

BRi recorded the highest number of ball recoveries (n=49), and statistical significance showed that it induced (BRi z=4.1) in the Central mid-defensive sector, specifically zone 5, a zone in which, according to Kerr-Cumbo (2022), City were significantly expected to be in "numerical superiority."

Another 21 balls BRp were recorded in zone 8. In the same competition, Kerr-Cumbo (2022) found statistical significance in City losing the ball in this zone (Kerr-Cumbo, 2022) yet, in this, we discovered that zone 8 induces ball recovery by defensive behaviour followed by a pass (BRp, z=2.67). The fact that the city wins the ball precisely in the same zone they lose it (according to Kerr-Cumbo, 2022) sits nicely with Guardiola's "Six Second Rule" at Barcelona and the idea of "Counter Pressing" Manchester City, and with the importance Pep's side put on the moment when they have just lost the ball, the idea of defending transition." Guardiola's philosophy to endlessly crowd the midfield to outnumber his opponents and to counterattack through central areas (Segrave et al., 2018) is shown through these results ('BRi' in 'zone 5' and 'BRp' in 'zone 8').

Although this study's first set of hypotheses focused on 'BRi,' 'BRt,' and 'BRp' about zones 5 and 8, the aim of this study is not to view the negative associations (as was done by Barreira et al., 2014b), data has inductively revealed an interesting fact. Through sequential analysis, it was clear that, in the observed games, there was an inhibition of BRi in 'zone 2' (z=-2.61) and an inhibition of BRp in the same zone (z=-4.46). It might be the case that this is since Manchester City utilise a high press (Segrave et al., 2018), pushing their defenders up to at least the 'mid-defensive sector' (zones 4, 5, and 6), which is backed up by the high number of BRgk, which reads z=10.82, thus showing that the ball was recovered multiple times by the goalkeeper when cleared by the opponents. Nonetheless, it could be that Manchester City recovered the ball in 'zone 2' in other ways, but not with a 'BRi' or 'BRp.' Additionally, while 'zone 5' and 'zone 8' did not induce BRt, the right defensive sector (zone 3, z=2.96) and right offensive sector (zone 12, z=3.36) were positively correlated with 'BRt.' This shows the success rate of starting an attack with a tackle at both ends on Manchester City's right side. This might show two opposing reasons for winning the ball at both ends: the idea of 'high press' when winning the ball up in 'zone 12' and the idea of 'under pressure' when winning the ball down in 'zone 3'. No statistical significance was found when looking at ball recoveries in the left path, which is shown in Figure 3.

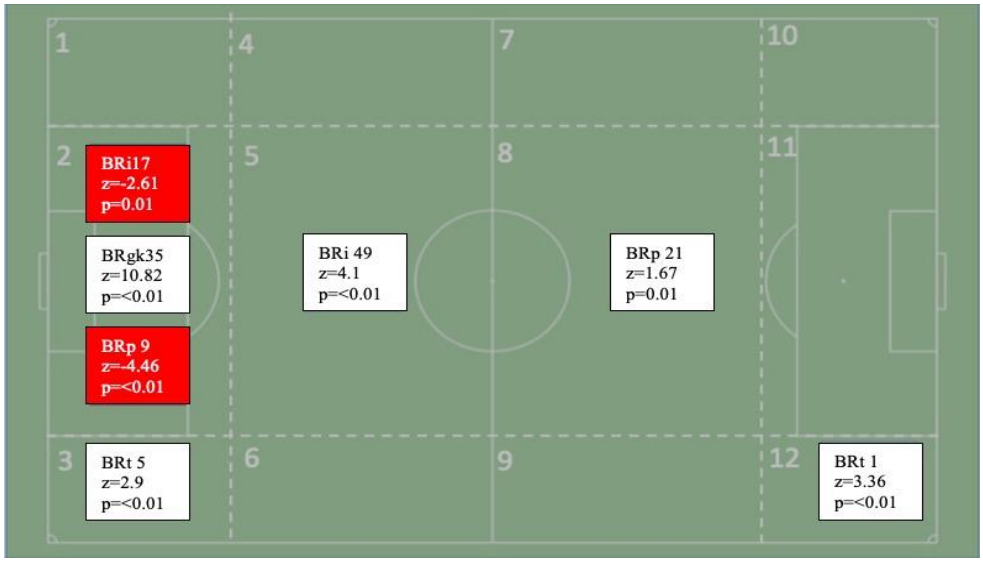

Figure 3. Ball recovery by interception (BRi), tackle (BRt), and defensive behaviour, followed by a pass (BRp) associated with statistically significant zones

Table 8. Alternative and Null Hypothesis Testing – 'The start of the offensive phase' (BRi, BRt, and BRp) with 'patterns of pitch space position' (Zones)

H1/H2 – Alternative Hypothesis	H0 – Null Hypothesis			
Zones and Ball Recovery				
CMDS and CMOS relationship with Ball Recovery by Interception (Bri)			Hypothesis	NULL Hypothesis
H1a – Central mid-defensive sector (CMDS) induces ball possession recovery by interception (Bri)	H0 – Central mid-defensive sector (CMDS) does not induce ball possession recovery by interception (Bri)	Bri in Zone 5 (z=4.1)	Accepted	Rejected
H1b – Central mid-defensive sector (CMDS) inhibits ball possession recovery by interception (Bri)	H0 – Central mid-defensive sector (CMDS) does not inhibit ball possession recovery by interception (Bri)		Rejected	Accepted
H1c – Central mid-offensive sector (CMOS) induces ball possession recovery by interception (Bri)	H0 – Central mid-offensive sector (CMOS) does not induce ball possession recovery by interception (Bri)	Bri in Zone 5 (z=-0.96)	Rejected	Accepted
H1d – Central mid-offensive sector (CMOS) inhibits ball possession recovery by interception (Bri)	H0 – Central mid-offensive sector (CMOS) does not inhibit ball possession recovery by interception (Bri)		Rejected	Accepted
CMDS and CMOS relationship with Ball Recovery by Tackle (BRt)				
H1e – Central mid-defensive sector (CMDS) induces ball possession recovery by tackle (BRt)	H0 – Central mid-defensive sector (CMDS) does not induce ball possession recovery by tackle (BRt)	BRt in Zone 5 (z=-1.47)	Rejected	Accepted
H1f – Central mid-defensive sector (CMDS) inhibits ball possession recovery by tackle (BRt)	H0 – Central mid-defensive sector (CMDS) does not inhibit ball possession recovery by tackle (BRt)		Rejected	Accepted
H1g – Central mid-offensive sector (CMOS) induces ball possession recovery by tackle (BRt)	H0 – Central mid-offensive sector (CMOS) does not induce ball possession recovery by tackle (BRt)	BRt in Zone 8 (z=-1.34)	Rejected	Accepted
H1h – Central mid-offensive sector (CMOS) inhibits ball possession recovery by tackle (BRt)	H0 – Central mid-offensive sector (CMOS) does not inhibit ball possession recovery by tackle (BRt)		Rejected	Accepted

Table 8 (Continued). Alternative and Null Hypothesis Testing – 'The start of the offensive phase' (BRi, BRt, and BRp) with 'patterns of pitch space position' (Zones)

H1/H2 - Alternative Hypothesis	H0 - Null Hypothesis			
Zones and Ball Recovery				
CMDS and CMOS relationship with Ball Recovery by Defensive behaviour followed by a pass (BRp)			Hypothesis	NULL Hypothesis
H1i - Central mid-defensive sector (CMDS) induces ball possession recovery by defensive behaviour followed by a pass (BRp)	H0 - Central mid-defensive sector (CMDS) does not induce ball possession recovery by defensive behaviour followed by a pass (BRp)	BRp in Zone 5 (z=-1.74)	Rejected	Accepted
H1j - Central mid-defensive sector (CMDS) inhibits ball possession recovery by defensive behaviour followed by a pass (BRp)	H0 - Central mid-defensive sector (CMDS) does not inhibit ball possession recovery by defensive behaviour followed by a pass (BRp)		Rejected	Accepted
H1k - Central mid-offensive sector (CMOS) induces ball possession recovery by defensive behaviour followed by a pass (BRp)	H0 - Central mid-offensive sector (CMOS) does not induce ball possession recovery by defensive behaviour followed by a pass (BRp)	BRp in Zone 8 (z=-2.67)	Accepted	Rejected
H1l - Central mid-offensive sector (CMOS) inhibits ball possession recovery by defensive behaviour followed by a pass (BRp)	H0 - Central mid-offensive sector (CMOS) does not inhibit ball possession recovery by defensive behaviour followed by a pass (BRp)		Rejected	Accepted

The Association of 'BRi,' 'BRt,' and 'BRp' (the start of the offensive phase) with 'the end of the offensive phase.'

A lagten0 sequential analysis in GSEQ-SDIS was applied (Bakeman and Quera, 2001). We started with a lag five analysis to test the Cohen Kappa association. Since no statistical significance was found, we ran a second analysis at lag 10.

The findings in this research for sequential associations, presented in yellow (Table 9), in contrast to already existing literature (Barreira et al., 2014b), marked in green, suggest no statistical significance when linking all criteria for the end of the offensive phase (F) with BRi and BRp.

Table 9. Ball recovery by interception (BRi), tackle (BRt), and defensive behaviour, followed by a pass (BRp) associated with the end of the offensive phase (F)

	With Efficacy			**Without Efficacy**				
	Fws	**Fst**	**Fso**	**Fgl**	**Fled**	**Fgk**	**Fo**	**Fi**
BRi					z=2.65		z=-2.65	
BRt				z=2.62 (Lag 7) z=2.15 (Lag 8) z=2.54				(Lag 6) z=2.91
BRp		z=3.23			z=-3.29			

On the other hand, this study and existing literature found an association between BRt and F. From these associations, this study found that two attacks ended with efficacy and another attack ended without efficacy. The two attacks ending with efficacy resulted in Fgl by BRt at Lag 7 (z=2.15) and Lag 8 (z=2.54). This could be because when Manchester City recover the ball, they do not hurry to score whenever possible. Still, instead, "City wisely pick their moments to unleash their

weapons when their opponents are spread out during their attack" (Eckner and Reynolds, 2018). To continue sustaining this argument, after Manchester City recover the ball, "through their 'patience' strategy, Manchester City do repeatedly pass the ball back to their CBs if they do not find the gaps to penetrate higher up the pitch" (Kerr-Cumbo, 2020). There was one goal in each lag, with a p-value of ~.03 in lag seven and a p-value of ~.01 in lag 8.

The interesting point is that, from the 16 goals scored in these six matches, five goals were scored as follows: one from a BRi and two each from a BRt and a BRp. Therefore, the second set of hypotheses was on track, although the BRt is the only ball recovery criterion statistically significant, thus rejecting the null hypothesis H2c. BRt was the only criterion from the three criteria analysed that induced F criteria through Fgl and Fi. Compared with the existing literature (Barreira et al. 2014b) ball recovery by a 'tackle' (BRt) induced 'F' criteria three times in this study while occurring once in the existing literature.

No negative associations were observed in this study between BR and F. Regarding the attack ending without efficacy, BRt induced Fi, which occurred once in lag 6, with z and p-values of 2.91 and ~<0.01, respectively.

According to Segrave et al. (2018), once Manchester City loses possession, their ability to counter-press heavily depends on the players' starting positions, namely, the rest defence. Once the opposition intercepts the central midfielder's pass, Manchester City ready themselves to defend against counterattacks in the centre of the pitch as they crowd the area to be in a 5 to 2 advantage in their rest defence while keeping in mind to pick up any runners from the opponents. According to Eckner and Reynolds (2018), "In the matter of attacking transitions, rather than aiming to counter whenever possible, City wisely pick their moments to unleash their weapons when their opponents are spread out during their attack."

Looking at the relationship between the type of ball possession recovery and the end of the offensive phase of the winning team during the 2002 World Cup competition, Taylor and Williams (2002) propose that the recovery of ball possession in the defensive area resulted in more attempts on goal than for the other participating teams. In contrast, Wright et al. (2011) found that most attacks leading to goal-scoring opportunities for football teams in the United Kingdom started in the attacking mid-third of the pitch. Smith and Lyons (2017) discovered that the most successful teams during four World Cups (2002 to 2014) regained ball possession in the middle third of the pitch, frequently providing the highest number of ball recoveries, leading to goals. From 31 analysed matches during the 2012 UEFA Euro Football Championship, 56.6% of the 76 goals scored were from a recovered ball in the attacking half, while 43.4% were from a recovered ball in the defending half (Mitrotasios and Armatas, 2014).

Table 10. Alternative and Null Hypothesis Testing – of 'BRi,' 'BRt,' and 'BRp' (the start of the offensive phase) with 'the end of the offensive phase'

Ball Recovery to Goals Scored (Lag 10)				
Goals Scored related to Ball Recovery by Interception (BRi)				
H2a - Ball possession recovery by interception (BRi) induces scoring goals (Fgl)	H0 - Ball possession recovery by interception (BRi) does not induce scoring goals (Fgl)	BRi and Fgl (n=0)	Rejected	Accepted
H2b - Ball possession recovery by interception (BRi) inhibits scoring goals (Fgl)	H0 - Ball possession recovery by interception (BRi) does not inhibit scoring goals (Fgl)		Rejected	Accepted
Goals Scored related to Ball Recovery by Tackle (BRt)				
H2c - Ball possession recovery by tackle (BRt) induces scoring goals (Fgl)	H0 - Ball possession recovery by tackle (BRt) does not induce scoring goals (Fgl)	BRt and Fgl (Lag 7 z=2.15) (Lag 8 z=2.54)	Accepted	Rejected
H2d - Ball possession recovery by tackle (BRt) inhibits scoring goals (Fgl)	H0 - Ball possession recovery by tackle (BRt) does not inhibit scoring goals (Fgl)		Rejected	Accepted
Goals Scored related to Ball Recovery by Defensive behaviour followed by a pass (BRp)				
H2e - Ball possession recovery by a defensive behaviour followed by a pass (BRp) induces scoring goals (Fgl)	H0 - Ball possession recovery by a defensive behaviour followed by a pass (BRp) does not induce scoring goals (Fgl)	BRp and Fgl (n=0)	Rejected	Accepted
H2f - Ball possession recovery by a defensive behaviour followed by a pass (BRp) inhibits scoring goals (Fgl)	H0 - Ball possession recovery by a defensive behaviour followed by a pass (BRp) does not inhibit scoring goals (Fgl)		Rejected	Accepted

CONCLUSION

This study looked at the relationship of 'BRi,' 'BRp,' and 'BRt' with the 'patterns of pitch space position,' more specifically, 'central mid-defensive' sector (zone 5) and 'central mid-offensive' sector (zone 8), and with the 'end of the offensive phase,' more specifically, 'goals scored' (Fgl). When looking at all the games Manchester City played during the group stage of the UEFA Champions League 2018-2019, findings show that 'BRi' is positively associated with 'zone 5', while 'BRp' is positively associated with 'zone 8', and 'BRt' is positively associated with 'Fgl' at Lag 7 and Lag 8.

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Author contributions: Research Design: JS, RKC, Data Collection: JS, RKC, Writing: JS, RKC, KG, EŞ

Declaration: The author declares that this study complies with the current laws of the country where it was performed.

Ethical Approval
Ethics Committee: MCAST – The Malta College of Arts, Science & Technology
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