Original Article

Differences in the match performance of Asian women's football teams

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Abstract:

The aim of this study was to identify the technical and tactical differences between Chinese, Japanese, South Korean, and Chinese Taipei women football teams according to their overall competitive ability, playing positions, and the competitive ability of key players. The analysis was based on 50 matches in the World Women's Cup, Algarve Cup, and East Asian Cup. The variables studied included: percentage of ball possession, percentage of ball possession in the final third, passes, pass accuracy, through passes, proportion of through passes, through pass accuracy, entries to the final third, 1vs1 success rate, shots, shots on target, goals, and ground and aerial duels and their success rate. Discriminant and ANOVA analyses were used for data analysis, and the level of significance was set at $p < 0.05$. The results showed that differences in the technical performances between these four teams were significant. The Japanese women's football team had a higher ball possession percentage, especially in the final third, during passes, through passes, and during goals in terms of overall competitive ability. In contrast to the playing positions, Chinese defenders had more successful forward passes and crosses. Japanese midfield players showed better performance in terms of passes, pass success, forward passes, cross success, and the forwards performed better during passes and exhibited a higher shot accuracy. The forwards from South Korea had more forward passes and shots and a much higher forward pass accuracy and heading and aerial duel success. Additionally, the key players from China performed more ground duels and had a higher ground duel success. The Japan team performed more passes and had a higher pass accuracy, forward pass success, shots, shot success, and 1vs1 success. South Korea's team had more forward passes and heading duel success. The technical performance of the Chinese Tai Pei team lagged behind other teams. In conclusion, the Japanese women's football team still has a leading position; however, the strength of the Asian women's football team is unbalanced, and from the perspective of technical performance, there is a certain gap between them and those of European and American teams. The recent match performance profiles of these Asian teams can inspire football coaches and managers to determine the latest trends in technical and tactical development and the competitive ability differences of Asian women's football teams and to alter their training sessions to improve players' match performances.

Key words: soccer, performance, playing positions, world women's cup 2019, technical and tactical

Introduction

Women's football is an important part of the football field, which developed very slowly due to historical and cultural factors. However, in the 21st century, women's football has developed rapidly and become an indispensable sport in the world competition stage (Coche, & Roxane, 2016). As an inseparable part of the world women's football, Asian women's football has created a brilliant history. The Chinese women's football team entered the finals in the 1996 Olympic Games and 1999 World Cup, while the Japanese women's football team won the 2011 World Cup and entered the finals of the 2011 London Olympic Games. The South Korean women's football team has enough reserve forces, and talented players are constantly appearing. The Chinese Taipei women's football team has also made rapid progress. Match performance of soccer is the result of the interaction of technical, tactical, physical and psychological activities presented by players in a formal match (Konstadinidou & Tsigilis, 2017). Match analysis can provide an objective, authentic and unbiased information for team activities, and it can be useful and inspired by coaches and performance analyst to identify the figure out the advantages and disadvantages exposed by players and teams in the game, and can also utilize these record to predict future performance in a sporting activity (Liu, Gomez, Miguel, & Lago, 2015). In a football match, the most direct way to compare the successful teams and unsuccessful teams is to compare the number of goals and how the goals scored (Liu, Gomez, Goncalves, & Sampaio, 2016). However, due to the low frequency of goal scoring, the finds of offensive sequence that lead to goal may not completely represent the playing styles of the teams (Caro & Caro-Muñoz, 2016). In this sense, the analysis of higher frequency such as ball possessions, total number of shots, shots on target and passes have been used in scientific literature (Gonzalez-Rodenas et al., 2015; Bauer et al., 2015; Garratt et al., 2017; Joaquin, Ignacio, & Rodrigo, Sainz, Baranda, Laura, & Adan, 2019; Kubayi, 2020;). In a previous study, it was identified that the shooting

accuracy was regarded as the in-game action that best explained football performance in LaLiga from 2010-2011 to 2017-2018, followed by other offensive technical indicators such as shots, shots on target, the percentage of ball possession and the pass accuracy(Lepschy, Wasche, & Woll, 2018).

Research has shown that successful teams are more inclined to use long passing sequences to maintain high ball possession percentage, but ball possession percentage can not contribute to achieve the success, because of the very low percentage of goals from six passes or more(Mota, Carlos, Gimenes, &Bradley, 2016). In addition, the success of counterattack is higher than elaborate attack(Sarmiento, Anguera, Pereira, &Araujo, 2018), the more passes performed in an offensive sequence, the lower of the attack efficiency, this may because the longer pass sequence can leave defenders more time to prepare the defense, which increases the difficulties of goal scoring(Liu, Hopkins, & Gomez, 2015). In order to more valid understand the various factors that restrict the success of the competition, the interacts between the two opposing teams must be taken into account in the analysis(Mao, Peng, Liu, & Gomez, 2016). However, the outcome of the match is related to the overall competitive ability that the whole team exerted. Besides, every player has specific tasks and undertakes associated functions according to his or her playing position in the match, for the purpose of achieving a successful performance, and eventually to win the game(Memmert, Lemmink, & Sampaio, 2016). Therefore, the positional differences should not be ignored when evaluating the match performance of players and an individualised standard should be applied for identifying the responsibilities and characteristics of different playing positions.(Mallo, Mena, & Nevado, 2015). The previous studies have pointed out the importance of technical and tactical performance during the match play, they reported that performance profiling can be improved when analyzing a large range of technical and tactical performances according to different playing position(Bush, Barnes, Archer, Hogg, & Bradley, 2015). Besides, the playing position differences between different countries and leagues is particularly significant(Yi et al., 2019). There have been many studies measured to identify the game-related statistics that different playing positions performed(Schuth, Carr, Barnes, Carling, & Bradley, 2016; Wiemeyer, 2017; Memmert, Lemmink, & Sampaio, 2016). Most of the previous studies are simply descriptive results, the details are not expanded. For instance, V. Di Salvo(2013) found that central defenders and wide defenders had the largest differences between English Premier League and English Championship League, in terms of total running distance, the running distance in the ECL covered more than 400 m than those in similar positions in the EPL, but the difference between the attackers was less.

This may be the result of different technical and tactical strategies and playing styles between the leagues. A comparative analysis of the physical and technical differences between domestic and foreign soccer players in CSL, research pointed out that foreign player performed more total distance, more aerial and ground challenges in central defender, more total distance and passes in wide defender, more number of passes, forward passes, aerial and ground challenges in central midfield, more distance covered, distance covered at high-intensity, number of high-intensity actions, sprint, number of sprints and number of passes in wide midfield, lastly, foreign player were discriminated from domestic players by greater total distance covered, and lower number of shots and shot success in strike (Yang, Anna, Anthony, Leicht, &Miguel-Angel, 2019).

The previous study compared the different playing positions in the UEFA Champions League from the season 2009-2010 to 2016-2017, their result showed that the differences between central defenders and forwards were biggest, the performance of full backs was least. Moreover, the wide midfield players do better than central midfield players in passing and organising, and forwards not only play a vital role in goal scoring but also in the initial defense process(Yi et al., 2018). The Japanese women's football players have great and obvious advantages in the technical and tactical aspects such as the ability to organize offenses, the pass accuracy and ball receives. Especially under the circumstance of high intensity and fierce confrontation, the ability to complete the technical and tactical aspects with low errors was very outstanding, and the attacking methods were varied(Ye, &Yu, 2009). The main way to break through the defensive lines was using more brilliant skills for Japanese women's football team, but they seldom use it, they prefer one-touch passes to disturb their opponents and seek the space, and combination passing drill to complete the breakthrough, while individual breakthrough was not the leading offensive profile of Japan(Hong, 2007). As Vamplew(2017) mentioned that, the defenders in Asian football teams are more inclined to focus on defensive actions and seldom take part in the build-up of their team attacks. However, the players from the English Premier League have superior technical and tactical skills and attacking capacities, they can do very well in both offense and defense. Therefore, the purpose of this study was to analyze the technical and tactical variables in Chinese, Japanese, Korean and Chinese Taipei women's football teams by means of video recording and statistical analysis, and to find out the differences among these four teams. This information might inspire football coaches and managers to understand the latest trend in technical and tactical development, the differences in competitive ability of Asian women's football team, and change their training methods to improve players' competitive ability and narrow the gap with strong teams in Europe and America.

Material and methods

Participants and Match Sample

Technical and tactical performance-related match data of all the tournament games that Chinese, Japanese, South Korean, Chinese Tai Pei women's football team attended in 2019 including 2019 Women's Cup, Algarve

Cup, East Asian Cup, and several friendly matches. And all 50 games of Chinese(17), Japanese(15), South Korean(16) and Chinese Tai Pei(9) women's football team in 2019 were collected for analysis.

Data Collection Procedures -Through inputting “2019 Women's Football East Asian Cup”, “2019 Women's World Cup”, and “2019 Algarve Cup” on CNTV, we downloaded the videos of the 50 matches of the Chinese women's football team, Japanese, South Korean and Chinese Taipei women's football team, technical and tactical data were collected by watching the match performance of four teams according to their overall perspective, playing positions(back, midfielder, forward), and key players were examined.

Measures of Competitive Performance - Through searching keywords such as “2019 Women's Football East Asian Cup”, “2019 Women's World Cup”, “Match Performance”, “Statistical Analysis”, and “Technical and Tactical Indicators” on Baidu academic, Taylor Francis Online literature websites, and relevant Chinese and English literature was consulted, and the game videos of China, Japan, South Korea, and Chinese Taipei were watched repeatedly. The technical and tactical indicators of 50 matches in 2019 have been collected. Including the overall competitive ability technical and tactical variables of the four teams, including percentage of ball possession, percentage of ball possession in the final third, passes, percentage of successful passes, through passes, proportion of through passes, percentage of successful through passes, entries to the final third, 1vs1 success rate, shots, shots on target and goals; Technical variables of the competitive ability of the playing positions(backs, midfielders and forwards) and key players of the four teams, including passes, through passes, shots, crosses, percentage of successful passes, percentage of successful through pass, percentage of successful shots, percentage of successful crosses, percentage success in aerial, and ground duel.

Statistical Analyses - A descriptive analysis was carried out on each technical and tactical variables at first, and Kolmogorov-Smirnov tests were used for reviewing the normality of data. The homogeneity of variances was examined by means of the Levene's test and an analysis of variance(ANOVA) was then measured to determine technical and tactical variables revealed differences between Chinese, Japanese, South Korean, and Chinese Tai Pei women's football team. The structure coefficient(SC), mean and standard deviation of the crux data were used to identify each team or playing position were respectively obtained, with the SC value > 0.30 was regarded as significant. And the statistical result variables were compared and analyzed to summarize the data of each team and find out the differences between the data. Then, the technical and tactical indexes of overall, playing position and key players among the four teams were compared and analyzed, the differences in technical and tactical variables of the four teams were evaluated. All statistical analyses were conducted using SPSS 22.0 for Windows and the level of significance was set at $p < 0.05$.

Results

Overall Match Performance of Asian Women's Football Team

Table 1 shows the description results of technical and tactical variables for overall match performance of Asian women's football team. The first category of variable(ball possession) the mean value and standard derivation of these four teams were significantly different for the following technical and tactical variables: ball possession, ball possession in final third, passes, forward passes, 1vs1 success, shots, shots on goal, and goals. For example, the Chinese women's football team had higher 1vs1 success(59 ± 3.2), but the through passes(127 ± 3.8), percentage of successful passes(72 ± 2.1), and goals(0.9 ± 0.1) was lower than other teams. Japanese women's football team was discriminated from other teams for performing better in ball possessions(53.2 ± 0.4), percentage in final third(55 ± 2.1), passes(410 ± 2.7), through passes(160 ± 4.2), and goals(2.1 ± 0.1). The number of shots(15 ± 1.5) and shots on goal(7 ± 0.9) of South Korea were higher than other teams. Percentage of ball possession(47.6 ± 1.2), percentage of ball possession in final third(36 ± 1.3), the passes(347 ± 2.1), and entries of the final third(36 ± 2.5) of Chinese Tai Pei were lower than other teams.

Table 1 Mean and Standard Derivation Overall match performance variables of Asian women's football teams

Variables	China		Japan		South Korea		Chinese Tai Pei		SC
	M	S	M	S	M	S	M	S	
Ball possession(%)	51.5	1.3	53.2	0.4	52.1	0.6	47.6	1.2	0.34
Ball possession in the final third(%)	46	2.4	55	2.1	47	0.8	36	1.3	0.46
Passes	386	3.4	410	2.7	389	1.8	347	2.1	0.52
Pass success(%)	72	2.1	74	2.6	74	1.9	74	1.6	-0.02
Through passes	127	3.8	160	4.2	142	2.3	136	3.1	0.56
Proportion of through pass	37	3.1	39	3.5	37	1.9	35	2.1	0.08
Through pass success(%)	60	3.2	63	4.1	58	2.7	60	2.4	-0.12
Entries to the final third	42	3.5	45	4.1	48	2.3	36	2.5	0.18
1vs1 success(%)	59	3.2	52	3.7	55	2.6	48	2.3	0.31
Shots	13	1.9	10	2.1	15	1.5	14	1.4	0.41
Shots on goal	3	0.8	2	1.1	7	0.9	3	0.7	-0.37
Goals	0.9	0.1	2.1	0.1	1.2	0.2	1.4	0.2	0.33

SC discriminant value $> |\pm 0.30|$.

Match Performance of Asian Women's Football Backs

The description results of technical and tactical variables for Asian women's football backs is presented in Table 2. This analysis revealed that higher pass success(72.9 ± 2.1), forward pass success(70.2 ± 1.1), and cross success(16.7 ± 0.7) in Chinese women's backs were highly significant than the other Asian women's backs. As for Japan, the backs were discriminated from others by higher forward passes success(65.8 ± 1.3), crosses(6 ± 1.1), and the percentage of heading duel(75 ± 1.3), but fewer pass success(63.2 ± 2.7). For South Korea, the backs performed more passes(141 ± 2.7), but lower forward pass success(58 ± 1.6) than other teams' backs. For Chinese Tai Pei, the passes(118 ± 2.3), forward passes(56.7 ± 1.2), crosses(2.7 ± 0.2), and cross success(7.6 ± 1.2) are all behind from other backs.

Table 2 Match performance variables of Asian women's football backs

Variables	China		Japan		South Korea		Chinese Tai Pei		SC
	M	S	M	S	M	S	M	S	
Passes	121	3.1	138	3.6	141	2.7	118	2.3	0.34
Pass success(%)	72.9	2.1	63.2	2.7	72.2	1.5	70.7	1.8	0.38
Forward passes	60	2.1	76	2.5	58	1.6	56.7	1.2	0.42
Forward pass success(%)	70.2	1.1	65.8	1.3	55.2	0.9	57.4	0.6	0.47
Crosses	6	0.6	6	1.1	3	0.5	2.7	0.2	0.31
Cross success(%)	16.7	0.7	16.7	0.3	11.1	0.5	7.6	0.2	0.39
Heading success(%)	59.2	1.1	75	1.3	50	0.9	57.3	1.8	0.41
Ground success(%)	58.9	1.2	62.5	1.8	69.3	1.1	48.5	1.5	0.45

SC discriminant value $> |\pm 0.30|$.

Match performance of Asian Women's Football Midfielders

The technical and tactical variables of Asian women's football midfielders as shown in Table 3. The Chinese women's midfielders did better in the crosses(8 ± 1.1) and ground duel success(52.9 ± 1.3), but the pass success(70.96 ± 2.7), forward pass success(51.39 ± 1.7), shot success(13.6 ± 2.2) were lowest than the other midfielders. Compared to Japan, the midfielders performed well in the passes(187 ± 3.2), pass success(77.0 ± 3.2), forward passes(64 ± 2.3), and the crosses success(28.6 ± 1.3). For South Korea, the midfielders had higher forward pass success(64.77 ± 1.4), the number of shots(9 ± 0.6), shot success(66.7 ± 1.4), and heading duel success(66.7 ± 1.3). Lastly, the midfielders of Chinese Tai Pei performed the fewer passes(127.3 ± 2.4), forward passes(50.1 ± 1.2), shots(4.7 ± 0.4), crosses(3 ± 1.7), cross success(9.7 ± 0.2), heading duel success(22.2 ± 1.2), and ground duel success(41.2 ± 1.7) than other teams.

Table 3 Match performance variables of Asian women's football midfielders

SC discriminant value $> |\pm 0.30|$.

Variables	China		Japan		South Korea		Chinese Tai Pei		SC
	M	S	M	S	M	S	M	S	
Passes	168	2.8	187	3.2	178	2.1	127.3	2.4	0.65
Pass success(%)	70.96	2.7	77.0	3.2	75.64	1.8	73.2	2.1	0.31
Forward passes	62	2.1	64	2.3	62	1.1	50.1	1.2	0.32
Forward pass success(%)	51.39	1.7	64.06	2.1	64.77	1.4	58.3	1.1	0.39
Shots	8	1.1	6	1.2	9	0.6	4.7	0.4	0.41
Shot success(%)	13.6	2.2	33.3	1.2	66.7	1.4	16.5	0.2	0.34
Crosses	8	2.3	7	1.3	8	2.1	3	1.7	0.45
Cross success(%)	17.1	1.2	28.6	1.3	12.5	2.1	9.7	0.2	0.61
Heading success(%)	40.8	2.4	60.1	0.8	66.7	1.3	22.2	1.2	0.58
Ground success(%)	52.9	1.3	50.1	2.1	43.5	2.2	41.2	1.7	0.42

Match Performance of Asian Women's Football Forwards

Table 4 represents the descriptive result of technical and tactical variables for the Asian women's forwards in terms of the match performance. Among them, every technical and tactical variable is significantly different from each other. Such as the Chinese women's football team, the pass success(74.1 ± 1.8) of Chinese forwards was higher than other teams. As for the Japanese women's football team, the forwards performed a larger number of passes(77 ± 2.3), and a higher shot success(33.3 ± 1.3) than other teams, but the pass success(62.3 ± 2.1) and ground duel success(41.2 ± 2.3) was inferior to other teams. For South Korean women's football team, the forwards had more forward passes(20.2 ± 1.6), shots(4 ± 1.1) and much higher forward pass success(44.8 ± 1.2),

heading duel success(66.67 ± 1.6), and ground duel success(55.5 ± 1.8), but the shot success(25 ± 1.6) was the lowest. For the Chinese Tai Pei women's football team, the passes(52.3 ± 2.1), the forward passes(4.4 ± 1.2) and its success(25.2 ± 1.7), the shots(2.3 ± 0.8) were lower than other teams.

Table 4 Match performance variables of Asian women's football forwards
SC>|±0.30 |.

Variables	China		Japan		South Korea		Chinese Tai Pei		SC
	M	S	M	S	M	S	M	S	
Passes	54	2.4	77	2.3	66	1.8	52.3	2.1	0.42
Forward passes	10.3	1.2	18.3	2.3	20.2	1.6	4.4	1.2	0.63
Shots	3	1.3	3	1.6	4	1.1	2.3	0.8	0.32
Pass success(%)	74.1	1.8	62.3	2.1	71.2	1.5	66.7	1.3	-0.31
Forward passes Success(%)	40.2	1.7	44.4	2.1	44.8	1.2	25.2	1.4	0.35
Shot success(%)	33.3	0.8	33.3	1.3	25	1.6	33.3	0.7	-0.21
Heading success(%) duel	20.1	2.3	50.3	1.2	66.67	1.6	14.57	2.1	0.53
Ground success(%) duel	52.48	2.9	41.2	2.3	55.5	1.8	42.3	2.1	0.42

Match Performance of Asian Women's Football Key Players

A descriptive result of match performance variables for Asian women's football key players as shown in Table 5. The key players of the four teams were discriminated from all the technical and tactical variables. The CM of Japan performed more passes(74 ± 3.4), higher pass success(88 ± 2.8), forward pass success(72 ± 2.8), the forward had more shots(3.1 ± 1.2), higher shot success(41.2 ± 18.9), and 1vs1 success(32.1 ± 6.3), but CB had the lowest heading duel success(20.1 ± 3.2). The WB of China performed more ground duels(4.6 ± 1.8), and higher ground duel success(58.2 ± 4.1). The CM of South Korea had more forward passes(29 ± 2.7), CB had higher heading duel success(58.2 ± 2.1). Lastly, the key players of Chinese Tai Pei performed fully behind other teams except the ground and heading duel success.

Table 5 Key performance variables differences between Chinese, Japanese, South Korean and Chinese Tai Pei women's football team

Table 5 : WB wing back, CM central midfield, CB central back

Variables	Position	China		Japan		South Korea		Chinese Tai Pei		P*
		Best	Worst	Best	Worst	Best	Worst	Best	Worst	
Passes	CM	50±2.1	28.3±3.6	74±3.4	30.1±4.2	59±2.4	26.2±3.3	52±2.7	24.6±2.1	<0.005
Forward passes	CM	25±2.5	8.8±2.1	25±3.5	9.8±2.7	26±2.7	8.3±2.1	29±1.8	7.5±1.4	<0.005
Shots	Forward	2.7±2.1	0.2±0.1	3.1±1.2	0.3±0.1	2.8±1.5	0.1±0.1	2.2±0.9	0	<0.005
Pass success(%)	CM	87±2.3	45.3±6.7	88±2.8	48.5±9.3	84±1.7	43.5±7.2	85±1.5	38.3±6.4	<0.005
Forward passes Success(%)	CM	72±2.8	23.4±4.2	60±3.3	32.6±5.3	62±2.5	24.5±4.2	55±2.1	19.4±5.1	<0.005
Shot success(%)	Forward	33.3±14.2	4.6±0.5	41.2±18.9	7.6±0.8	28.1±12.5	0	22.6±9.8	0	<0.005
1vs1 success(%)	Forward	26.2±4.5	8.7±2.5	32.1±6.3	9.4±1.3	21.3±3.1	5.3±1.4	19.2±2.1	0	<0.005
Heading duels	CB	3.4±1.2	1.8±0.1	3.1±0.8	1.7±0.1	4.2±1.1	1.6±0.1	2.9±0.9	0.9±0.1	<0.005
Ground duels	WB	4.3±1.8	2.2±0.8	4.6±1.2	2.4±1.1	3.6±1.2	1.9±0.8	3.2±1.5	1.8±0.6	<0.005
Heading duel success(%)	CB	52.2±4.2	18.4±2.5	48.1±2.4	20.1±3.2	58.2±2.1	22.3±1.2	42.±3.1	20.2±2.1	<0.005
Ground duel success(%)	WB	58.2±4.1	21.2±3.5	54.1±3.2	23.2±3.1	49.1±1.2	25.2±4.1	48.1±3.6	20.2±2.1	<0.005

Discussion

The aim of this study was to identify the differences of match performance between Chinese, Japanese, South Korean, and Chinese Tai Pei women's football team from overall competitive ability, playing position, and the function of the key player through the matches in 2019.

The indicators of match performance have been defined as a selection or combination of game variables that allow the factors of performance in sport to be described (Gorki et al., 2015). Key performance variables was the epitome of the match dominance for a tournament, as Table 7 presented, various playing position from different teams performed distinctively. Japanese women's football team dominated in number of passes, forward passes, shots, pass success, shot success, 1vs1 success, ground duels, which is significantly discriminated with other teams ($P < 0.05$), and it's also a vital factor contribution Japanese women's football team can be predominant position in Asian women's football.

As the Table 1 showed, the Chinese women's football team had a high number of shots, but the shots on goal and the percentage of converting shots into goals were comparatively low. This meant that the Chinese player lacked the ability to grasp the shot opportunity, the shooting prowess was not exquisite enough, and it could not complete the technical actions well under the condition of confrontation. The passes and the success rate of passes were low, especially the long passes. This shows that the passing technique, the ability of the combination of passing and receiving, and heading duel for high-altitude balls need to be improved. On the other hand, the Japanese women's football team prefers elaborate attack playing styles, which are dominated by consecutive passing, can patiently organize offenses in the final third, with high passing accuracy and low error rate, and can firmly grasp the offense tempo and initiative of the match. The players are more active in running positions and have a stronger ability to grasp opportunities. The South Korean women's football team can still maintain a high percentage of ball possession under the oppression of the other half-court. The players have a strong consciousness of forward movement and often form a situation of playing more and playing less in the final third. They can create many scoring opportunities, but their ability to finish it is poor. The ball possession of the Chinese Tai Pei women's football team is the lowest of the four teams, especially the ball possession in the final third, which is 19 percentage points lower than that of the highest Japanese team and 10 percentage points lower than that of the Chinese team. But the passes and its success rate of Chinese Tai Pei is not the least, which indicated that the basic skill of passing and receiving is not solid enough to organize offense under the circumstance of the fierce duel in final third, the main passing area of Chinese Tai Pei is in the middle and defensive third, with the low-efficiency returns and line passes, the simple but effective counterattack is the primary offense method of the Chinese Tai Pei players, they can create some fine score opportunities but hardly grasp it, the scarce capacity of applying technical and tactical strategy under the charging opponent, low score success rate and the high error rate is also a prominent problem.

The overall offensive play of modern football requires the more comprehensive capacity for female backs (Sanchez-Sanchez et al., 2018). It can be seen that Chinese backs had a strong consciousness of forward attack. They can frequently dash forward to support the attackers and organized the offense due to the sufficient physical strength in the final third. The number and success rate of crosses were comparative high, the short pass accuracy was good but the long passes accuracy was poor, it shows that Chinese backs cannot take advantage of their physical fitness to get the advantage in physical duel, which caused the percentage success in heading and ground duel was comparative low. Japanese backs owned strong consciousness of forward movement, the passes and its success rate is higher. It was because Japan players had the preference to possess the ball in the final third, and their offense play was extremely aggressive, the frequent movement made their passes have more options to choose from, and the more difficult for defenders to intercept. The most important factor is Japanese backs can maintain the high accuracy passes when suffering high-intensity confrontation, the cross and its success rate is pretty nice, which made the attack play of Japan women's football team more diversified. The passes of South Korean women's backs are higher than other teams, but the forward passes and the success rate were low. This shows that South Korean women's backs had a low passing skill and can not smoothly transfer the ball to the middle and final third in the face of intensive defense, with square pass and return as the main pass direction. The low passes and the low cross success rate show that the South Korean women's backs concentrate on defense, with less dash forward, and the quality of the passes is not good enough to share the offensive pressure in the final third. It can be seen that the low passes, especially forward passes for Chinese Tai Pei women's football team, the reason was that the ball passing skill of Chinese Tai Pei backs was comparatively worse, they can not observe the position of their teammates effectively when confronted with a fierce duel. The passes in defensive third were mostly aimless and hastily, and Chinese Tai Pei football players lacked sufficient movement, which made the offense more difficult. The lowest crosses and its success rate showed that the less aggressiveness of Chinese Tai Pei backs, the quality of crossing is bad and the attackers lack aerial prowess, offensive play was simple and monotonous, hardly can create scoring opportunities.

Midfielder as the offense and defense hub of a team, whose ability was crucial to the overall match performance of a team. (Abbott, Brickley, & Smeeton, 2018). The Chinese women's football midfielders were generally performing and had not played many roles in organizing attacks. The passing accuracy was low, the running position was not active enough, the physical confrontation ability was general, and the ability to grasp attacking opportunities was poor. The high passing frequency and success rate of the Japanese women's football midfield players show that the Japanese women's football team has very good control over the situation and tempo of the midfield. The teammates have good coordination in passing and ball receiving. They often use one-touch passes and a fast pass to change offense direction, which disturbed opponent to defense, consumed a lot of energy from the defenders and seek the space to destroy the defense lines, and Japanese midfielders not at the

expense of her strength to tackle and intercept aggressively, which made the attempts of their opponent more cautious. The midfielder of South Korea was the main force on the court, the passes and its success rate were only behind Japan. The quality of crossing was fine, the high physical quality, they have certain advantages in a physical confrontation, and can play a good role in organizing offense, creating shooting opportunities and have high shooting quality. Compared with the other three teams, the Chinese Tai Pei women's football midfield players are lagging in all technical and tactical indicators. The passes, through passes and its low success rate, accounted for the speed of transition between offense and defense was sluggish. When the pass was delivered to middle third, the defender of the opponent had already returned to the defensive position to carry out active defense. The midfielders of Chinese Tai Pei can't effectively dribble the ball to the final third but only to be tackled or pass the ball back. Besides, the ability of physical duel is inferior to other teams from the heading and ground duel success rate, which caused the pass accuracy was not reasonable and the error rate was pretty high, and they seldom delivered the threatening ball, lack of the ability of short passing penetration, the long pass was causal and aimless when faced with tough opponents. In a word, the Chinese Tai Pei midfielders had negligible dominance to the middle third.

The forward is the main force in scoring goals, and offense ability of forward is the main factor that directly affects the results of each team(Wright, Atkins, Polman, Jones, & Sargeson, 2011). However, goal scoring is the result of a combination of many elements like technical, psychological, physical and tactical(Tenga, & Sigmundstad, 2011), which is a very arduous process for players. The comparative analysis of the forwards' performance data shows that, Chinese forwards had a fewer number of passes, seldom pass forward, but the percentage success in ground duel was high, which showed that the Chinese forwards usually received the ball back to the goal due to the tough defense, the principle attack pattern was pass back and dash forward, besides, comparison to other teams' forward, the height of Chinese forward was comparative shorter, the ability to grasp the first landing point of long passes was poor, lacking the heading duel ability, most of effective offense were ground attacks, but the effect was general. The Japanese forwards had high passes but the forward passes and its accuracy was low. It showed that the main passes were backward, the low quality forward passes were hard to create offense opportunities. The South Korean women's football forwards had a large proportion of forward passes, high success rates of passes, shots, high success rates of aerial, and ground duels. This showed that South Korean women's football forwards had good physical fitness and obvious advantages in physical confrontation. They can create many opportunities for shooting, but hard to scored. The number of shots and passes, the percentage success in heading duel of Chinese Tai Pei forwards was inferior than other teams. It showed that the poor capacity of aerial duel and caressing the ball, and it is difficult to create offensive opportunities in the final third, the shooting skills also need to be improved. And the comparative result about forward is coordinated with the previous research that the differences between the forwards in UEFA league are significant(Yi et al., 2018).

The key players determine the technical and tactical characteristics of the team, and their competitive ability is an important guarantee for the team to behave well in the match. The exertion of their competitive ability often plays a decisive role in the competition. (Steve et al., 2018). The data on the performance of the key players of the four countries' women's football showed that the key players of the Chinese women's football were mainly distributed in the defensive third, however, the key player of other teams distributed in the middle third, so the number of passes and its success rate was hardly compared to others, but it implied that the offense for Chinese always was organized in the defensive third, the percentage of successful attacks was natural comparatively lower, and the passes were mainly made up of long-distance, which added the difficulties to the attacks, so the attack effect was not reasonable. The key players of the Japanese women's football team are mainly distributed in the midfield area, shouldering the important task of passing and receiving the ball, and their passes were higher than other teams. From the video of the match, the ability of Japanese midfielders was brilliant. They had a broad vision, the fast tempo passes, used more one-touch passes, the pass quality was good, large running coverage, frequent receiving of teammates' passes, which greatly relieves the pressure of defense and offense. The key players of the South Korean women's football team were mainly distributed in the midfield area, which can well support the fine operation in midfield and competition control, the high accuracy of passes, but the ball receives was inefficient. The key players of the Chinese Taipei women's football team were mainly distributed in the middle third, the number of passes and pass success rate were lower, the forward pass and its success rate, and the ball receives are higher than other teams. This showed that the position running of Chinese Tai Pei players was more active and had strong forward consciousness, but the pass effect was not good enough and the ability to create offensive opportunities was insufficient.

Conclusion

In conclusion, various technical and tactical differences were noted between Chinese, Japanese, South Korean, and Chinese Tai Pei women's football teams in terms of the competitive ability of different playing positions and key players' from all the matches in 2019. The biggest differences were found between midfielders and forwards while defenders presented the trivial differences. The Japanese midfielders showed better performance in passing and organising patterns. The forwards performed better in goal scoring than other Asian teams. Chinese defenders were involved more in the link-up and attacking process as the launching point of the offense. The players of South Korea had a good physical quality and strong physical confrontation ability.

However, due to the late development of the Chinese Tai Pei women's football team, their match performance was worse, but its development has great potential. At present, there is still a certain gap between the strong teams in European and American for Asian women's football teams in terms of technical performance. The data presented within the current study identified that match performance differences from the overall competitive ability, different playing positions' and key players' technical activities, which might help the coaches and performance analysts to account for diverse playing styles based upon country of origin and develop training to enhance individual technical and tactical skills of players for team success over a season.

Disclosure statement

No potential conflict of interest was reported by the authors.

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