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Goal-Scoring Patterns in Elite Asian Youth Football: Evidence from the AFC U-17 and U-20 Asian Cups 2025

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ABSTRACT

Background & objective: This study aimed to analyze the contribution of set plays and open play to goal-scoring outcomes in elite Asian youth football by examining goal-scoring patterns in the AFC U-17 Asian Cup 2025 and AFC U-20 Asian Cup 2025, with particular attention to differences across age categories within the AFC youth competition context.

Materials and methods: A descriptive observational research design was employed using systematic notational analysis. All goals scored in the AFC U-17 Asian Cup 2025 (n = 101) and the AFC U-20 Asian Cup 2025 (n = 93), resulting in a total of 194 goals, were included in the analysis. Each goal was classified based on the phase of play preceding the scoring action (open play or set play) and further categorized according to the final attacking action leading to the goal. Data were analyzed using descriptive statistics, including frequencies and percentages, to identify dominant goal-scoring patterns across tournaments and age groups.

Results: The findings indicated that open play was the primary source of goals, accounting for 73.71% of total goals scored across both tournaments, while set plays contributed 26.29%. In the AFC U-17 Asian Cup 2025, penalties constituted the highest proportion of set-play goals, whereas in the AFC U-20 Asian Cup, corner kicks were the most frequent set-play source. Analysis of open-play goals revealed that crosses and forward passes were the most common attacking actions leading to goals in both tournaments. A more balanced distribution of attacking actions was observed at the U-20 level, suggesting greater tactical variability compared to the U-17 competition.

Conclusions: Open play represents the dominant mechanism of goal production in elite Asian youth football. Nevertheless, set plays remain a significant contributor to goal scoring, particularly at the U-17 level. The observed differences between age categories highlight age-related variations in tactical execution and goal-scoring patterns within AFC youth competitions, underscoring the importance of age-specific training and tactical preparation.

Keywords

goal-scoring patterns; open play; set plays; youth football; AFC competitions.

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INTRODUCTION

Global and Theoretical Context

Goal scoring represents the ultimate indicator of success in football performance analysis, as it directly determines match outcomes and competitive superiority (Santos & Lago-Peñas, 2019). Regardless of the playing level, teams that consistently create and convert scoring opportunities are more likely to achieve positive results (Souza et al., 2019). In elite youth football, this understanding is particularly crucial, as players at this stage are undergoing intensive technical, tactical, and cognitive development that shapes their future performance at senior levels (Battaglia & Kerr, 2024). Elite AFC Asian youth tournaments provide a valuable context for examining goal-scoring behavior, as they feature highly trained young players competing under intense physical and psychological pressure. Matches in these tournaments often involve balanced opposition, making goal-scoring efficiency and tactical effectiveness critical determinants of success (Gómez et al., 2015). This gap in the literature is particularly notable given the rapid development of youth football systems under the governance of the Asian Football Confederation. In recent years, AFC youth competitions

have become increasingly competitive, reflecting improvements in coaching education, talent identification, and player development pathways across the continent.

Critical examination of existing literature

The analysis of goal-scoring patterns provides valuable information for coaches, analysts, and talent developers by revealing the underlying mechanisms that lead to successful attacking outcomes (Sarmiento et al., 2014). Identifying the most effective attacking actions allows practitioners to design evidence-based training programs and tactical strategies aligned with the demands of competition (Craven et al., 2025). Moreover, goal-scoring analysis at the youth level can contribute to long-term athlete development by highlighting tactical behaviors and decision-making processes that should be emphasized during formative stages of player education (González-Ródenas et al., 2022). In contemporary football research, goals are commonly classified according to the phase of play preceding the scoring action, most notably set plays and open play (Kim et al., 2019). Set plays consist of structured and pre-planned situations such as corner kicks, free kicks, penalties, and throw-ins, during which

teams have the opportunity to organize attacking movements in a controlled environment. These situations often involve rehearsed tactical patterns aimed at exploiting spatial advantages or mismatches in defensive organization (Almeida et al., 2019). In contrast, open play refers to goals scored during the continuous flow of the game, characterized by dynamic interactions between players, rapid decision-making, positional rotations, and spontaneous technical actions such as passing, dribbling, and shooting (Coutinho et al., 2023). Each phase of play reflects distinct tactical and technical demands and places different constraints on players' perceptual and cognitive processes. Set plays emphasize organization, timing, and execution under relatively predictable conditions, whereas open play requires adaptability, creativity, and the ability to exploit emerging spaces under defensive pressure (Boylan & Turner, 2017). As a result, the relative contribution of set plays and open play to goal outcomes may vary depending on competition level, tactical culture, and developmental stage of the players involved (Tousios et al., 2018). Previous research conducted in senior elite football has consistently shown that the majority of goals are scored from open play, while set plays contribute a smaller proportion but often play a decisive role in closely contested matches (Kubayi, 2020; Wright et al., 2014). Studies have highlighted the strategic importance of set plays, particularly in tournaments where match outcomes are frequently determined by marginal differences (Almeida et al., 2019).

Identification of research gaps

Despite this growing body of literature primarily focused on senior elite football, empirical evidence examining elite youth football competitions remains comparatively limited, especially within the Asian football context (Andersen et al., 2024; Goto & Saward, 2019). While numerous studies have analyzed goal-scoring patterns in high-profile events such as FIFA World Cups, UEFA Champions League, and European national leagues—

highlighting differences between open play and set plays across various competitions (Li & Zhao, 2021)—far fewer investigations target youth-level tournaments, particularly those governed by the Asian Football Confederation. This oversight is notable given the rapid evolution of youth football systems in Asia, including advancements in coaching, talent identification, and player pathways, which have elevated the competitiveness of AFC U-17 and U-20 Asian Cups. Moreover, existing youth-focused research often emphasizes European or global FIFA events, neglecting region-specific tactical nuances, cultural influences on play styles, and age-related developmental differences prevalent in Asian competitions (Ribeiro et al., 2022; Sarmiento et al., 2015). Bridging this gap is crucial, as it would enable coaches and analysts to develop targeted strategies that account for the unique physical, tactical, and psychological demands of elite Asian youth football, ultimately enhancing long-term player development.

Rationale for the research

Analyzing how goals are generated in this context can offer important insights into the attacking tendencies and developmental characteristics of elite youth football in Asia. By providing a detailed analysis of goal-scoring patterns, this research seeks to contribute to the existing literature on football performance analysis and to offer practical implications for coaches, analysts, and youth development programs operating within the AFC context.

Objectives

The purpose of this study is to examine the contribution of set plays and open play to goal outcomes in elite AFC Asian youth football. Specifically, this study aims to identify the most frequent goal-scoring actions within each phase of play and to compare the relative proportion of goals scored from set plays and open play.

MATERIALS AND METHODS

Participants

The unit of analysis was goal-scoring events rather than individual players. The sample included all goals scored in two elite Asian Football Confederation (AFC) youth tournaments: the AFC U-20 and the AFC U-17 Asian Cup 2025. A total of 194 goals were analyzed (U-20: $n = 93$; U-17: $n = 101$). No exclusion criteria were applied, and all goals recorded in the official competitions were included, representing a complete census of goal-scoring events. A total population sampling approach was used, whereby all goals from the selected tournaments were analyzed to ensure comprehensive representation and minimize sampling bias. Data were obtained from officially released AFC match reports and competition statistics available through public AFC platforms. As the study relied exclusively on secondary data, no participant recruitment, consent, or compensation procedures were required.

Study Organization

A descriptive observational design using systematic notational analysis was employed. Descriptive statistics (frequencies and percentages) were calculated for each goal-scoring category and presented in tabular form to compare contributions from set plays and open play across the U-17 and U-20 tournaments. No inferential statistical analyses were conducted. The study utilized official AFC match reports, match summaries, and competition statistics as primary data sources.

Test Procedures and Measurement Protocol

Each goal was classified according to the phase of play immediately preceding the scoring action as either set play or open play. Set plays included goals from corner kicks, free kicks, penalties (including rebounds), and throw-ins. Open play goals were further categorized based on the final intentional attacking action, such as combination play, crosses, cut-back passes, dribbling actions, long-range shots, penetrating or aerial passes, defensive errors, and own goals. Only the final attacking action prior to the goal was coded to avoid overlap.

Table 1. Presents the operational definitions used to classify open-play attacking actions preceding goal-scoring events.

Action	Guidelines
Combinations	Combination moves involving 2/3/4 players
Crosses	Crosses from the wing
Cut-backs	Backward passes from the goal-line
Diagonals	Diagonal passes into the penalty box
Dribbling	Dribbling and finishing or providing an assist
Long-range shooting	Shots from outside the penalty box including rebounds
Forward passes	Penetrating or aerial passes
Defensive errors	Exploiting mistakes by goalkeeper or defenders
Own goals	Players scoring against their own team

In contrast, and Table 2 outlines the operational definitions applied to set-play attacking actions, providing a clear distinction

between goals originating from continuous play and those resulting from structured restart situations.

Table 2. Operational definitions set play attacking actions

Action	Guidelines
Corners	Directly / indirectly from a corner
Free kicks (direct)	Direct from a free kick
Free kicks (indirect)	Indirectly from a free kick
Penalties	Spot kicks, including rebounds
Throw-ins	Following a throw-in

Ambiguous cases were resolved by cross-referencing official AFC match descriptions. As the study involved no direct human participation, ethical approval and informed consent were not required.

Statistical Analysis

The study utilized official AFC match reports, match summaries, and competition statistics as primary data sources. A

standardized notational analysis framework, developed based on previous goal-scoring research, was used to classify goals according to phase of play and final attacking actions. Data coding and tabulation were conducted using spreadsheet software.

Ethical Considerations

This study was conducted using exclusively secondary data sourced from publicly available official AFC match reports, match summaries, and competition statistics. No primary data collection involving human participants took place, and the unit of analysis was aggregate goal-scoring events rather than individual players. Therefore, no ethical approval from an institutional review board, informed consent, or participant recruitment procedures were required. All data handling adhered to standards of academic integrity, ensuring transparency and accuracy in classification and reporting.

RESULTS

A total of 194 goals were recorded and analyzed across two elite Asian Football Confederation (AFC) youth tournaments, consisting of 93 goals from the AFC U-20 Asian Cup and 101 goals from the AFC U-17 Asian Cup. Goals were classified according to their phase of play, namely set plays and open play, and further categorized based on the final attacking action leading directly to the goal. Across both competitions, goals originating from open play constituted the majority of goal outcomes, accounting for 143 goals (73.71%), while 51 goals (26.29%) resulted from set-play situations. This distribution indicates a consistent dominance of open play as the primary source of goals in elite Asian youth football.

Table 3. Overall distribution of goals by phase of play (AFC U-17 Asian Cup and AFC U-20 Asian Cup combined)

Phase of Play	Goals	Percentage (%)
Set Play	51	26.29
Open Play	143	73.71
Total	194	100

Table 3 shows that, across the AFC U-17 Asian Cup and AFC U-20 Asian Cup, the majority of goals were scored from open play, accounting for 143 goals (73.71%), while 51 goals (26.29%) originated from set-play situations. This distribution indicates that open play accounted for a higher proportion of goals than set plays when both tournaments are combined.

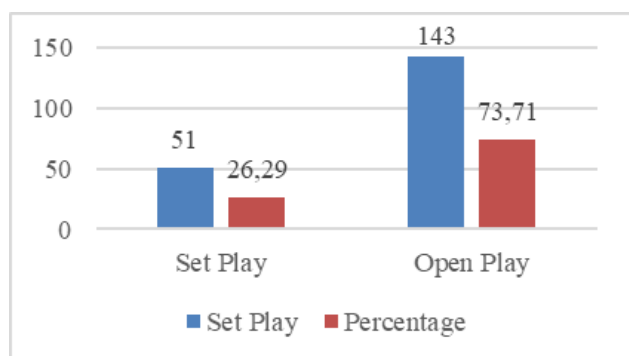


Figure 1. Graphic distribution of goals by phase of play

Table 4. Distribution of goals by set play (AFC U-17 Asian Cup)

Phase of Play	Goals	Percentage (%)
Corner kicks	8	26.7
Free kicks (direct)	4	13.3
Free kicks (indirect)	1	3.3
Penalties	16	53.3
Throw-ins	1	3.3
Total	30	100

Table 4 indicates that, in the AFC U-17 Asian Cup, penalties

represented the largest share of set-play goals, with 16 goals (53.3%). Corner kicks accounted for 8 goals (26.7%), while direct free kicks (4 goals; 13.3%), indirect free kicks (1 goal; 3.3%), and throw-ins (1 goal; 3.3%) contributed smaller proportions of set-play goals.

Table 5. Distribution of open-play goals in the AFC U-17 Asian Cup

Open Play Action	Goals	Percentage (%)
Crosses	25	35.21
Forward passes	14	19.72
Cut-backs	8	11.27
Dribbling	8	11.27
Long-range shots	6	8.45
Diagonal passes	5	7.04
Defensive errors	4	5.63
Combination play	1	1.41
Own goals	0	0
Total	71	100

As shown in Table 5, crosses were the most frequent open-play action leading to goals in the AFC U-17 Asian Cup, accounting for 25 goals (35.21%). Forward passes contributed 14 goals (19.72%), followed by cut-back passes and dribbling actions, each with 8 goals (11.27%). Long-range shots (6 goals; 8.45%), diagonal passes (5 goals; 7.04%), defensive errors (4 goals; 5.63%), and combination play (1 goal; 1.41%) accounted for smaller proportions, while no own goals were recorded.

Table 6. Distribution of goals by set play (AFC U-20 Asian Cup)

Phase of Play	Goals	Percentage (%)
Corner kicks	10	47.62
Free kicks (direct)	2	9.52
Free kicks (indirect)	3	14.29
Penalties	5	23.81
Throw-ins	1	4.76
Total	21	100

Table 6 shows that, in the AFC U-20 Asian Cup, corner kicks were the most frequent source of set-play goals, accounting for 10 goals (47.62%). Penalties contributed 5 goals (23.81%), followed by indirect free kicks with 3 goals (14.29%) and direct free kicks with 2 goals (9.52%). Throw-ins accounted for 1 goal (4.76%).

Table 7. Distribution of open play goals in the AFC U-20 Asian Cup

Open Play Action	Goals	Percentage (%)
Crosses	21	29.17
Forward passes	20	27.78
Cut-backs	12	16.67
Dribbling	8	11.11
Long-range shots	5	6.94
Diagonal passes	2	2.78
Defensive errors	2	2.78
Combination play	1	1.39
Own goals	1	1.39
Total	72	100

Table 7 indicates that open-play goals in the AFC U-20 Asian Cup were distributed across several attacking actions. Crosses accounted for 21 goals (29.17%), while forward passes contributed 20 goals (27.78%). Cut-back passes resulted in 12 goals (16.67%), followed by dribbling actions with 8 goals (11.11%) and long-range shots with 5 goals (6.94%). Diagonal passes and defensive errors each accounted for 2 goals (2.78%), while combination play and own goals each contributed 1 goal (1.39%).

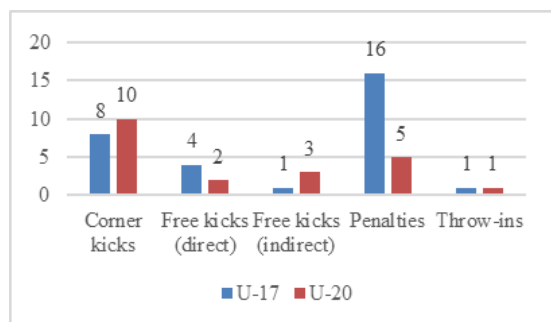


Figure 2. Graphic distribution of goals by set play

Figure 2 presents the distribution of goals scored from set-play situations in the AFC U-17 Asian Cup and AFC U-20 Asian Cup. In the U-17 competition, penalties accounted for the highest number of set-play goals (16 goals), followed by corner kicks (8 goals). Direct free kicks (4 goals), indirect free kicks (1 goal), and throw-ins (1 goal) contributed smaller numbers. In the U-20 competition, corner kicks represented the most frequent source of set-play goals (10 goals), followed by penalties (5 goals). Indirect free kicks accounted for 3 goals, direct free kicks for 2 goals, and throw-ins for 1 goal. Overall, the figure shows variation between the two age categories in the distribution of goals across different set-play types.

DISCUSSION

This study examined how goals were generated in the AFC U-17 and U-20 Asian Cups 2025 by distinguishing between open-play and set-play situations and by identifying the final attacking action preceding each goal. The principal finding is that open play was the predominant route to goal production across the two competitions, whereas set plays constituted a smaller but strategically meaningful component of scoring. More importantly, the distribution of goal-producing actions differed between age categories. At U-17 level, penalties constituted the largest set-play category and crosses were the dominant open-play action. At U-20 level, corner kicks became the leading set-play source, while crosses and forward passes were more evenly represented.

These findings directly answer the study objective by demonstrating that the mechanisms associated with scoring are not uniformly distributed across elite youth competitions. The results therefore contribute more than a simple description of how often goals occur: they indicate that goal production in elite Asian youth football combines a relatively stable macro-pattern with age-specific tactical variation. The stable component is the predominance of open play, while the variable component is the relative contribution of particular attacking actions within open and set play.

The observed U-17/U-20 contrast should not, however, be interpreted as evidence that maturation itself causes different scoring strategies. The present design is descriptive and observational, and no inferential tests were conducted. Consequently, there is no statistical basis for claiming that the

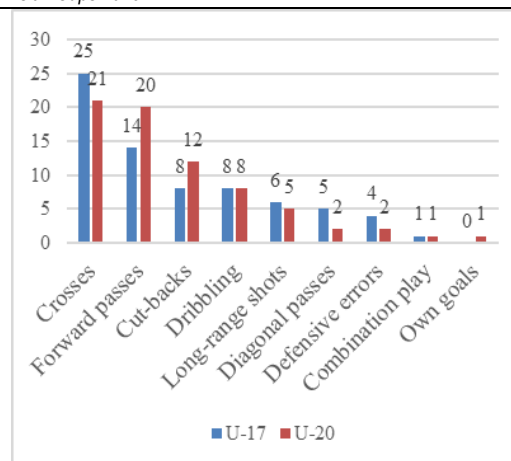


Figure 3. Graphic distribution of goals by open play

Figure 3 illustrates the distribution of goals scored from open-play actions in the AFC U-17 Asian Cup and AFC U-20 Asian Cup. In the U-17 competition, crosses accounted for the highest number of open-play goals (25 goals), followed by forward passes (14 goals). Cut-back passes and dribbling actions each resulted in 8 goals, while long-range shots contributed 6 goals. Diagonal passes accounted for 5 goals, defensive errors for 4 goals, and combination play for 1 goal. No own goals were recorded in the U-17 competition. In the U-20 competition, crosses also represented the most frequent open-play action leading to goals (21 goals), followed by forward passes (20 goals). Cut-back passes contributed 12 goals, dribbling actions and long-range shots each accounted for 8 goals, diagonal passes resulted in 2 goals, defensive errors in 2 goals, and both combination play and own goals contributed 1 goal each. The figure indicates differences in the frequency of open-play actions leading to goals between the two tournaments.

observed differences are statistically significant, nor was there sufficient evidence to estimate an age effect. In addition, the study did not formulate or test formal statistical hypotheses. Thus, hypothesis support is not applicable in the inferential sense. The appropriate interpretation is one of practical and tactical relevance rather than statistical significance. In particular, the concentration of U-17 set-play goals in penalties and the relatively more distributed U-20 open-play profile may be practically important for coaching design, even though their statistical significance was not tested.

The findings also suggest a developmental transition in the variety of attacking solutions. The U-17 profile was comparatively concentrated around crosses and penalties, whereas U-20 scoring showed a more balanced contribution from crosses, forward passes, and cut-backs. This pattern is compatible with evidence that tactical behavior changes across youth age categories, although such changes are multidimensional and cannot be reduced to age alone. Research involving elite Spanish youth players has demonstrated age-related differences in tactical behavior under real competitive constraints, while Japanese academy data have shown that technical and match-performance characteristics also vary across youth age groups (González-Ródenas et al., 2022; Goto & Saward, 2019).

Comparison with International Evidence

The predominance of open play observed in the present study broadly agrees with international performance-analysis literature. Studies of elite football in Europe and at major

international tournaments consistently indicate that goals are generated through multiple attacking routes but that open-play actions constitute an important, often dominant, component of goal production (Boluda et al., 2021; Gouveia et al., 2023; Li & Zhao, 2021). In the 2018 FIFA World Cup, for example, Boluda et al. (2021) examined 94 goals and demonstrated that open-play scoring patterns were influenced by pitch zones and the number of players involved, emphasizing the contextual and spatial nature of goal production rather than treating all open-play goals as tactically equivalent.

The present findings extend this evidence into an underrepresented population: elite Asian youth national-team competitions. Li and Zhao (2021), analyzing ten seasons across Europe's five major leagues, identified significant differences among leagues in several scoring patterns, including corner kicks, penalties, counterattacks, and throw-ins. Their findings are particularly relevant because they demonstrate that goal-scoring mechanisms are influenced by the competitive environment and tactical culture rather than representing a universal football pattern. The current AFC results similarly show that the dominant mechanism may remain open play while the relative contribution of individual actions varies across competitive contexts and age categories.

The importance of crosses in the present study is also consistent with contemporary international evidence. Gouveia et al. (2023), comparing La Liga and the English Premier League, demonstrated that goal-scoring patterns differed according to both the location and characteristics of attacking actions, reinforcing the idea that wide-area attacks and deliveries should be interpreted within their spatial and tactical context rather than as isolated technical events. The relatively high contribution of crosses in both AFC competitions therefore appears consistent with a broader international pattern, while the stronger relative contribution of forward passes at U-20 level suggests that youth teams may increasingly combine width with vertical progression as tactical organization develops.

The age-related interpretation is also supported indirectly by comparative international youth research. Ju et al. (2025) compared U-17, U-20, and senior teams using optical tracking across FIFA competitions and demonstrated that competitive level is associated with differences in technical, tactical, and physical match performance. This evidence supports the broader interpretation that youth-to-senior development involves changes in match behavior, but it does not establish that any single tactical variable follows a simple linear progression with age. Similarly, research on elite Japanese youth players documented age-related variation in technical match performance across U13–U18, highlighting the importance of developmental stage when interpreting competitive behavior (Goto & Saward, 2019).

There are also important differences between this study and previous international studies. Sarmiento et al. (2016), for example, examined 30 matches from the Spanish elite futsal league and found that positional attacks and set pieces accounted for substantial portions of goal production. Futsal differs from outdoor football in pitch dimensions, number of players, restart frequency, tactical constraints, and possession structure; therefore, direct numerical comparison is inappropriate, although the study reinforces the methodological value of classifying the attacking sequence preceding a goal. Likewise, Boluda et al. (2021) incorporated spatial pitch zones and the number of players involved, whereas the present study intentionally focused on the final attacking action. Differences in measurement and analytical granularity can therefore explain

why apparently similar studies produce different distributions.

Population and contextual factors are equally important. European domestic leagues involve repeated encounters over a long season, whereas the AFC U-17 and U-20 Asian Cups are short international tournaments involving national teams with different football cultures, preparation periods, squad composition, and tactical philosophies. Cultural and league-specific differences have previously been proposed as potential explanations for variation in scoring patterns across countries (Li & Zhao, 2021). The current results should therefore be interpreted as evidence of goal-scoring patterns within AFC youth tournament contexts, rather than as evidence of a universal Asian youth football model.

Concepts such as intervention dose, training duration, and implementation fidelity are less directly applicable because this investigation was not an intervention study. However, differences in tournament format, match exposure, competitive stage, tactical preparation, and coaching philosophy may function as important contextual modifiers. These factors were not measured in the present analysis and therefore cannot be used to explain causal differences between U-17 and U-20 teams.

Theoretical, Methodological, and Practical Implications

Theoretically, the findings support a view of goal scoring as a multilevel and context-dependent process rather than a single technical outcome. The distinction between open play and set play provides a useful macro-level classification, but the variation within these categories demonstrates that the phase of play alone does not capture the full complexity of attacking behavior. The greater distribution of U-20 goals across crosses, forward passes, and cut-backs suggests that developmental progression may involve increasing flexibility in selecting attacking solutions rather than simply increasing the frequency of one preferred action.

Methodologically, the study demonstrates the value of a complete census of goal events within defined competitions. All 194 goals from the selected tournaments were included, thereby avoiding participant sampling within those competitions. The operational definitions also provide a reproducible framework for classifying goals according to the final attacking action. However, future studies should move beyond single-event notation toward sequential and spatial analysis. The systematic-review literature on football match analysis has emphasized the growing sophistication of descriptive, comparative, and predictive approaches to performance analysis (Sarmiento et al., 2014).

Practically, the findings support differentiated rather than identical tactical priorities across age groups. For U-17 teams, set-play preparation should receive structured attention, particularly penalty-related processes and defensive prevention of dangerous restart situations. For U-20 teams, training may place greater emphasis on integrating crosses, forward passes, and cut-backs into variable attacking sequences. However, these recommendations should be treated as evidence-informed priorities, not prescriptive rules, because the present study measured goals rather than the underlying number or quality of attacking opportunities.

Strengths and Limitations

A major strength is the use of a total-population approach in two major AFC youth tournaments, with all recorded goals included rather than a sample of matches or players. This minimizes selection bias within the defined tournaments. The use of official AFC reports and competition statistics also provides a transparent data source, while ambiguous cases were cross-referenced against official descriptions.

Nevertheless, several limitations constrain interpretation. First, the descriptive observational design does not permit causal inference or formal assessment of statistical significance. Second, the unit of analysis was the goal event, meaning that teams and matches contributed unequally depending on scoring frequency. Third, the coding framework captured only the final intentional attacking action immediately preceding the goal. It therefore excludes potentially important preceding possession sequences, defensive organization, pressure, transition context, player positioning, and spatial-temporal interactions. Fourth, potential information and classification bias cannot be completely excluded. Although ambiguous cases were cross-referenced with official AFC descriptions, the manuscript does not report independent double-coding, inter-rater reliability, coder blinding, or an adjudication procedure involving multiple analysts. These omissions create uncertainty regarding measurement reproducibility. Future studies should report training of coders, blinded independent coding, Cohen's kappa or comparable reliability coefficients, and a prespecified coding manual. Fifth, potentially important confounders were unavailable, including scoreline, match status, tournament stage, opponent strength, playing style, possession context, substitutions, defensive formation, and match location. Missing-data handling is also not explicitly reported. Although all official goals were included, the completeness and consistency of the underlying match records were not independently audited. Sixth, there was no longitudinal follow-up; therefore, the observed U-17/U-20 differences cannot demonstrate developmental change within the same players. Finally, no confidence intervals or uncertainty estimates were reported, and the multiple descriptive categories may encourage overinterpretation of small frequency differences. The findings should consequently be considered descriptive evidence with limited transferability, particularly beyond AFC tournaments.

Future Research

Future research should extend the present framework

through multicountry and longitudinal designs. Studies should compare AFC competitions with FIFA U-17/U-20 World Cups and youth competitions from Europe, South America, Africa, and CONCACAF to determine whether the observed Asian patterns are competition-specific or part of broader international trends. Longitudinal research following cohorts from U-17 to U-20 and subsequently to senior football would be especially valuable for distinguishing developmental effects from team, federation, and tournament effects.

Methodologically, future studies should combine notational analysis with optical tracking, event-data, and spatial-temporal variables. Instead of coding only the final action, researchers should model the complete possession sequence, field zone, number of attackers and defenders involved, defensive pressure, scoreline, match minute, transition status, and shot location. Multilevel or sequential analytical approaches could then estimate whether particular attacking patterns are associated with scoring after accounting for team and match-level factors. Reliability should be established through independent blinded coders and inter-rater agreement testing.

Future studies should also investigate mechanisms and moderators, including player maturation, tactical formation, coaching philosophy, national football culture, tournament stage, and opponent strength. Replication across multiple editions of AFC competitions would reduce the influence of tournament-specific variation. Finally, intervention studies should test whether age-specific training based on observed goal-scoring patterns improves attacking efficiency, with sufficiently long follow-up to determine retention and transfer to competition. Where implementation decisions have substantial resource implications, cost-effectiveness and implementation-fidelity analyses should be incorporated so that tactical recommendations can be evaluated not only for performance benefit but also for feasibility and sustainability.

CONCLUSION

This study provides clear evidence that open play is the dominant source of goal production in elite Asian youth football, accounting for more than two-thirds of total goals in both AFC U-17 and U-20 competitions. These findings confirm that the tactical principles underpinning goal-scoring at senior elite level are already strongly established during the youth elite phase. While set plays contributed a smaller overall proportion, their impact was particularly pronounced at the U-17 level, where penalties emerged as a key determinant of goal outcomes. Distinct age-related differences in goal-scoring patterns indicate a progressive evolution of tactical behavior across developmental stages. U-17 teams showed greater reliance on set plays and wide attacking strategies, whereas U-20 teams demonstrated a more advanced use of forward passing actions and structured open-play attacks.

This progression reflects increasing tactical sophistication, decision-making quality, and technical consistency as players approach senior-level competition. Collectively, these findings advance current understanding of goal-scoring dynamics in elite youth football and provide a robust empirical basis for age-specific coaching interventions and performance analysis frameworks within the Asian football context. The results underscore the necessity of prioritizing open-play development while systematically integrating set-play training within long-term player development models. Future research should build on this evidence by incorporating contextual and sequential analyses to further refine tactical understanding across youth football pathways.

DECLARATIONS

Ethical Approval

This study did not require ethical approval because it exclusively used secondary data obtained from publicly available official AFC match reports, match summaries, and competition statistics. No primary data were collected from human participants, and the unit of analysis was aggregate goal-scoring events rather than individual participants. Therefore, institutional ethical approval was not required for this study.

Consent to Participate

Not applicable. This study did not involve the recruitment or direct participation of human participants. The analysis was based exclusively on publicly available secondary data from official AFC competitions.

Consent for Publication

Not applicable. The study used publicly available aggregate competition data and did not report identifiable personal information or individual-level participant data.

Author Contributions (CRediT)

Wisnu Arda Gutawa: Conceptualization, Methodology, Data Curation, Formal Analysis, Investigation, Writing – Original Draft, and Project Administration.

Gigih Siantoro: Conceptualization, Methodology, Supervision, and Writing – Review & Editing.

Achmad Widodo: Methodology, Investigation, Supervision, and Writing – Review & Editing.

Irmantara Subagio: Methodology, Data Curation, Investigation, and Writing – Review & Editing.

Himawan Wismanadi: Data Curation, Investigation, Validation, and Writing – Review & Editing.

Heri Wahyudi: Validation, Supervision, and Writing – Review & Editing.

All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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Conflict of Interest

The authors declare that they have no competing interests.

Data Availability

The data analyzed in this study were derived from publicly available official AFC match reports, match summaries, and competition statistics. The study analyzed all recorded goals from the AFC U-17 Asian Cup 2025 and AFC U-20 Asian Cup 2025. The underlying data are available through the official AFC competition platforms and related publicly accessible match records.

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Generative AI Disclosure

The authors declare that no generative artificial intelligence (AI) tools were used in the preparation, analysis, interpretation, or writing of this manuscript.

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