World Cup Player Stats Data Analysis

Executive Summary:

This report provides a comprehensive analysis of the average age of players in the 2022 Qatar World Cup, encompassing 32 teams with a total of 680 players. The data reveals key insights into team composition, positional age dynamics, and notable variations among teams. With this data we want to answer the following 5 questions:

1. How does the team composition, in terms of squad size, vary across the 32 teams in the tournament?
2. What is the average age of players in the 2022 Qatar World Cup, and how does it vary among different teams?
3. How does the age of players impact the final standings of teams in the World Cup, and what patterns or trends emerge when comparing the top four teams to the bottom four teams?
4. What is the distribution of goals scored based on the age groups of players, and how does this information relate to playing time and peak performance?
5. How do age demographics relate to disciplinary aspects in the World Cup, such as yellow and red card incidents, and what insights can be derived from analyzing the average age of carded players by country?

Question 1: How does the team composition, in terms of squad size, vary across the 32 teams in the tournament?

Team Composition:

- Mean Players per Team: 21.25
- Median Players per Team: 21.0
- Variance of Players per Team: 3.81
- Standard Deviation of Players per Team: 1.95

The average team size is approximately 21 players, indicating a consistent squad composition across the tournament.

Question 2: What is the average age of players in the 2022 Qatar World Cup, and how does it vary among different teams?

Age Distribution:

- Mean Age: 28.08
- Median Age: 28.25

- Variance of Age: 0.94
- Standard Deviation of Age: 0.97

The teams exhibit a narrow age distribution, with an average age ranging from 25.7 to 29.6. This suggests a balanced mix of experienced and younger players across the tournament.

Teams with Highest Average Age:

IR Iran: 29.6 years old
Qatar: 29.4 years old
Belgium: 29.3 years old
Uruguay: 29.2 years old

- These teams may prioritize experience, leadership, and composure in highpressure situations, common traits associated with older players.
- The choice of an older squad may be influenced by the nature of international competitions, where seasoned players bring stability.

Teams with Lowest Average Age:

Ecuador: 25.7 years old
United States: 25.8 years old
Ghana: 26.5 years old

Probable Explanations:

- Ecuador might be strategically focusing on youth development, nurturing emerging talents for sustained success.
- The focus on youth suggests a commitment to building a competitive team for future competitions.

Positional Age Analysis: Defenders (DF):

- Ranges from Ecuador's youthful 24.0 to Uruguay's experienced 30.9.

Probable Explanations:

- A youthful defense for Ecuador could be part of a long-term strategy to build a competitive team for future tournaments.
- Uruguay's emphasis on experienced defenders may be to provide a solid and reliable defense, especially in high-stakes competitions.

Forwards (FW):

- Spans from the United States' 24.1 to Costa Rica's 31.7, reflecting diverse age strategies.

Probable Explanations:

- The United States may prioritize the development of young attacking talent.
- A focus on speed and agility in the forward line could be part of their playing style, particularly if they are building for the future.

Goalkeepers (GK):

- Varies between Portugal's 24.0 and Mexico's 38.0, emphasizing the specialized nature of goalkeeping.

Probable Explanations:

- Younger goalkeepers may have the potential for future growth and development.
- Mexico's preference for older goalkeepers could reflect the importance they place on experience and stability in the crucial position of goalkeeping, particularly in highpressure situations.

Midfielders (MF):

- Extends from the United States' 24.2 to Qatar's 30.0, showcasing a mix of youth and experience. *Probable Explanations:*

- Qatar's choice of older midfielders might be a deliberate decision to bring in experienced players who can control the tempo of the game, provide leadership, and handle the pressure of international competitions.

General Observations and Implications:

Pie Chart:

- The red slice represents the average age of defenders at 28.3 years old. The percentage value of 24.6% on the slice indicates the proportion of the total average age that defenders contribute.
- The green slice represents the average age of forwards at 27.7 years old. The percentage value of 24.0% on the slice indicates the proportion of the total average age that forwards contribute.
- The blue slice represents the average age of goalkeepers at 31.40. The percentage value of 27.3% on the slice indicates the proportion of the total average age that goalkeepers contribute.

- The orange slice represents the average age of midfielders at 27.8 years old. The percentage value of 24.1% on the slice indicates the proportion of the total average age that midfielders contribute.

Positional Age Dynamics:

- Traditional football powerhouses (Brazil, Germany, Argentina) maintain average ages around 28, suggesting a balance of experience and skill.
- Defenders and forwards tend to be younger on average than midfielders and goalkeepers.
- Goalkeepers consistently have the highest average age.

Team Strategies and Trade-offs:

- Teams may make strategic trade-offs between experience and youthful energy in different positions.
- Older players, especially in physically demanding positions, might be chosen for injury resilience.

Long-Term Planning:

- Teams with younger players might be focusing on long-term development and building a team for the future.

Age According to Starters vs Substitutes:

Background for Comparison: According to a study done by The Athletic in 2021, the peak age for a soccer player is 26.29 years old.

Source: Worville, T. (2021, November 15). What Age Do Players in Different Positions Peak? *The Athletic.* https://theathletic.com/2935360/2021/11/15/what-age-do-players-indifferentpositions-peak/) Data Analysis:

Range of ages for starters in the World Cup: 25.64-30.62 years old

Mean Age of a Starting Player- 28.40

- Although The Athletic determined that the peak age for a soccer player was 26.29 years old, the average starting player in the 2022 World Cup was 2.11 years older than that. This suggests a greater emphasis on experience and veteran presence over youthful athleticism.

Teams with the highest ages per starting squad:

- Belgium (30.62)

- Uruguay (30.00)
- Qatar (29.79)
- IR Iran (29.69)
- Mexico (29.67)

Possible Explanations:

- The above teams may value experience over youth amongst their starting players.
- There may be a player or two that are significantly older that skew the average towards the higher end of ages for starting players.

Teams with the lowest ages per starting squad:

- England (27.53) ● Ghana (27.14)
- Spain (26.88)
- Ecuador (26.43)
- United States (25.64)

Possible Explanations:

- Much like above, the ages for these starting lineups may be skewed by a player that is significantly younger than the rest.
- In the US, there is much more competition from other sports that draw the country's top athletes, meaning that fewer of them choose to pursue professional soccer.

Average Age of Substitute Players Per Country:

Range: 24.14-29.50 years old

Mean Age of Substitute Player- 27.45 years old

Teams with Highest Age per Substitute Player:

- Qatar (29.50)
- Tunisia (29.33)
- Canada (29.09)
- IR Iran (29.00)
- Uruguay (28.90)

Possible Explanations:

- IR Iran, Uruguay, and Qatar were all also in the top five oldest starters list, suggesting that they have an older group of players from which to field a team.

Teams with Lowest Age per Substitute Player:

- United States (26.22)
- Senegal (25.64)
- Costa Rica (25.50)
- France (25.43)
- Ecuador (24.14)

Possible Explanations:

- Many teams use major international competitions as a development path for their young players, with the hope that younger, more energetic players are able to surprise their older rivals.
- Coaches may prefer to have younger players on their bench since they are less likely to deal with major injuries.

Question 3: How does the age of players impact the final standings of teams in the World Cup, and what patterns or trends emerge when comparing the top four teams to the bottom four teams?

<u>Effect of Age on Final World Cup Standings:</u>

Top Four Teams:

Final Rank	Country	Avg. Age of Starter	Avg. Age of Substitute
1	Argentina	28.83	27.12
2	France	27.55	25.50

3	Croatia	28.74	28.38
4	Morocco	27.59	26.71

Average Starting Age of Top Four Teams: 28.18 years old

Average Substitute Age of Bottom Four Teams: 26.92

Bottom Four Teams

Final Rank	Country	Avg. Age of Starter	Avg. Age of Substitute
28	Wales	28.86	26.70
29	Ecuador	26.43	24.14
30	Canada	29.13	29.09

31	Qatar	29.79	29.50

Average Starting Age of Bottom Four Teams: 28.55 Average

Substitute Age of Bottom Four Teams: 27.36 **General**

Observations and Implications:

- All final four teams had an average starting age under 29 years old; avg starting age was 28.18.
- No teams with an average starting age of 29 or higher advanced past the Round of 16
- These things indicate that the most successful teams need to have a blend of experience while maintaining enough youth to be in peak athletic condition.
- The average starting age of the bottom four teams (28.55) was only .37 years (4mo. 13 days) higher than the top four teams.
- Two of the bottom four teams had an average starting age over 29.

Question 4: What is the distribution of goals scored based on the age groups of players, and how does this information relate to playing time and peak performance?

Goals Scored according to ages:

The oldest player to score at the World Cup was born in 1983, with the youngest being born in 2004. That encompasses a 21-year age difference.

Range of goal scorers	No. of Goals Scorers	Sum of Goal Scored
1983-1986	3	6
1987-1989	8	17
1990-1992	25	33
1993-1995	27	32
1996-1998	29	44
1999-2001	22	35
2002-2004	3	3

- The above table adequately summarizes the goals scored in the tournament.
- The oldest and youngest age groups both had the least number of goal scorers. This would be because of these age groups being given the least amount of playing time. Another explanation behind this is the oldest age group would primarily consist of players who would not be relied upon for their goal scoring.
- The majority of the goals came from the 1996-1998 age group, boosted by the player who had the most goals in the tournament being born in 1998 (8 goals). The second most goals were scored by a player in the 1987-1989 age group (7 goals).
- With a majority of the age goals coming in the age groups starting from 1990 to 2001, this would indicate that these are the players who were given the most playing time and/or were at the peak of their careers.
- 563 players didn't score a goal.

	goals	player
0	1	86
1	2	20
2	3	7
3	4	2
4	7	1
5	8	1

- As shown above, the more goals scored the fewer the number of players. An indication of how hard it is to score more goals.

Goals, Assists, and Starters:

- Teams that scored and assisted more tended to advance farther into the tournament.
- Only one team had the greatest number of starters per game and won the tournament, Argentina
  - Changing their team but keeping the base of Messi up front, De Paul in midfield and Martinez in goal allowed Argentina to experiment against teams with different defensive structures.
- A goal can be given without an assist if the goal is scored via the following:
  - Penalty kick
  - Direct free kick
  - Own goal

Question 5: How do age demographics relate to disciplinary aspects in the World Cup, such as yellow and red card incidents, and what insights can be derived from analyzing the average age of carded players by country?

Yellow/Red card age analysis

- Yellow Card Age Analysis
  - Yellow Carded Players/Age by country
    - Most Yellow Carded Players by Country
- Saudi Arabia - 12 (Avg Age: 28.7)
- Netherlands - 11 (Avg Age: 27.5)
- Argentina - 10 (Avg Age: 28.4)
    - Fewest Yellow Carded Players by Country
- England - 1 (Avg Age: 27.7)
- Spain - 2 (Avg Age: 27.0)
- Ecuador - 2 (Avg Age: 25.7)
  - Average Player's Age per yellow card count
    - Zero yellow cards
      - 453 players (Avg Age: 27.9)
    - Minimum 1 yellow card
      - 195 players (Avg Age: 28.6)
    - Minimum 2 yellow cards
      - 29 players (Avg Age: 28.4)
    - Three yellow cards

- 2 players (Avg Age: 29.0)
    - ***Both Argentine players (World Cup Winners and played in the most number of games) *** *Probable Explanations:*
        - Countries that played more games were more likely to have more carded players due to more playing time compared to countries that played fewer games were more likely to have fewer carded players.
            - Future analysis of games played to average age of yellow cards received.
        - Observation of slightly higher age in countries with more yellow carded players and slightly higher age of carded players to non-carded players.
            - Future analysis will look at player position to average age and yellows card received.
        - Future analysis to compare the number of fouls committed by player's age to number of yellow cards.
- Red Card Age Analysis
    - Average Player's Age per red card count ■ 676 players didn't receive a red card.
- Average age 28.1

■ 4 players received one red card.

- Average age 29.8
- Small data sample
- ***Wales goalkeeper (age 35) received the only direct red card in the World Cup

Probable Explanations:

- Small sample size of only four red carded players average age to 676 non-red carded players' age.
    - Observation of slightly older average age of red carded players to non-red carded players

Potential limitations:

While our dataset provides valuable insights into World Cup 2022 player age dynamics, it's crucial to acknowledge potential limitations. Firstly, the dataset's accuracy hinges on the reliability of the sources, and any inaccuracies or omissions in player records could impact our findings. Additionally, the dataset may lack certain contextual factors influencing player age, such as injuries, career transitions, or late additions to teams. The analysis assumes that age is the sole determinant of player performance, overlooking other crucial factors like skill level, fitness,

and playing experience. Moreover, variations in team selection criteria and playing strategies among nations may introduce biases. Lastly, the dataset's static nature limits our ability to capture real-time changes in player demographics or team dynamics. Recognizing these limitations enhances the interpretative scope of our analysis and encourages a nuanced understanding of the presented findings.

Conclusion:

In conclusion, the analysis of the 2022 Qatar World Cup player statistics has yielded valuable insights into team composition, age dynamics, and performance outcomes. Key findings include a consistent squad size across teams and a balanced age distribution, with variations in team strategies evident through age disparities. The preference for experience over youthful athleticism, particularly in starting lineups, impacted the success of teams, as none with an average starting age of 29 or higher advanced past the Round of 16. Goal-scoring patterns highlighted the contribution of players in their peak years, while disciplinary aspects revealed older players receiving more yellow cards on average. Acknowledging potential limitations, such as the static nature of the dataset, these findings contribute to a nuanced understanding of the interplay between age, team dynamics, and performance in the World Cup. Looking ahead, future analyses could explore individual player roles, tactical strategies, and the impact of key moments. Incorporating advanced analytics and machine learning models could offer predictive insights, while extending the dataset to cover multiple World Cup editions would reveal longitudinal trends. Additionally, considering external factors like technology, coaching changes, and player demographics could provide valuable context, further enhancing our holistic understanding of football dynamics.