



# Evaluating Accessibility and Utilization of Tennis Facilities in Public Sports Centers: Implications for Community Engagement

Hikmad Hakim<sup>1ABCD\*</sup>, Muhammad Ishak<sup>2BD</sup>, Ahmad Rum Bismar<sup>3BC</sup>

<sup>1,2,3</sup>Program Study of Sports Coaching Education, Faculty of Sports and Health Sciences, Makassar State University

\*Corresponding Author: [hikmad.hakim@unm.ac.id](mailto:hikmad.hakim@unm.ac.id), [m.ishak@unm.ac.id](mailto:m.ishak@unm.ac.id), [ahmad.rum.bismar@unm.ac.id](mailto:ahmad.rum.bismar@unm.ac.id)

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## ABSTRACT

This study aims to evaluate the accessibility and utilization of tennis facilities in public sports centers and assess their implications for community engagement in Makassar City, Indonesia. Employing a mixed-methods design, the research combined quantitative surveys (n=200) and qualitative interviews (n=20) across four major public tennis venues: Karebosi, Panakkukang, Antang, and Sudiang. The primary variables examined were physical accessibility, facility utilization, demographic reach, and community participation indicators. Findings show that Karebosi Sports Center scored highest in accessibility (mean score = 8.5/10) and average weekly utilization (75 users/week), followed by Panakkukang (8.0; 62 users/week), while Antang and Sudiang scored significantly lower in both accessibility (6.4 and 6.2, respectively) and utilization (38 and 33 users/week). Facility condition and management support were significantly correlated ( $r = 0.71$ ;  $p < 0.01$ ) with higher utilization rates. Demographically, adults (ages 26–45) made up 52% of users, while youth (15–25) accounted for 38%, particularly high at Panakkukang due to structured youth programs. Elderly participation remained low across all sites ( $\leq 5\%$ ), signaling a lack of inclusive programming. Only 2 out of 4 facilities hosted community engagement activities (e.g., tournaments, clinics), and these were directly associated with higher user satisfaction and retention. The study concludes that infrastructure quality, inclusive programming, and active community outreach are critical in maximizing the social value of public tennis facilities. Policy recommendations include improved funding, participatory facility management, and integrated sport-for-all strategies to enhance community engagement and public health in urban Makassar.

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## **INTRODUCTION**

Sports and physical activity have long been recognized as essential contributors to public health, social cohesion, and overall quality of life (World Health Organization, 2020). Public sports facilities play a crucial role in facilitating community participation in physical activities by providing accessible, safe, and affordable spaces for exercise and sport. Tennis, as a globally popular sport, has been associated with physical, psychological, and social benefits, including cardiovascular health, mental well-being, and community engagement (Kelley & Kelley, 2017; Warburton et al., 2019).

Urban public sports centers are designed to serve diverse populations, fostering inclusivity and promoting active lifestyles. Accessibility, both physical and economic, alongside utilization rates of these facilities, is critical to realizing these health and social outcomes (Bauman et al., 2018). Accessibility encompasses geographic proximity, affordability, facility quality, and operational hours, while utilization reflects the actual engagement of community members in the offered programs (Giles-Corti et al., 2016). Understanding the dynamics between facility accessibility and community utilization informs effective policy-making, resource allocation, and strategic planning for urban sports development.

In the context of Indonesia, and specifically Makassar City, public sports centers are vital infrastructure components supporting government initiatives aimed at increasing sports participation and fostering social integration (Ministry of Youth and Sports, Indonesia, 2021). Tennis facilities within these centers represent both a recreational and competitive outlet for citizens of varying ages and backgrounds. However, the extent to which these facilities are accessible and actively utilized by the Makassar community remains underexplored.

Recent local studies have examined participation trends in various sports, noting barriers such as limited facility availability, lack of awareness, and socio-economic constraints (Putra et al., 2022; Amalia et al., 2021). These factors potentially limit the inclusiveness of tennis programs and restrict the sport's role in community development. Moreover, urban growth and demographic changes in Makassar, including increased youth populations and migration, demand adaptive management of public sports facilities to meet evolving community needs (Hasanuddin et al., 2023). The evaluation of tennis facility accessibility and utilization involves multiple dimensions, geographic accessibility, affordability, facility condition, program diversity, and user satisfaction. A comprehensive assessment of these dimensions can provide insights into the current challenges and opportunities to enhance community engagement through tennis.

Despite the recognized importance of public sports centers, several critical issues persist: (1) Accessibility Challenges: Physical distance to sports centers, inadequate transportation, and high usage fees may hinder equitable access for lower-income populations (Sari et al., 2020). Furthermore, scheduling constraints and limited operating hours can reduce facility availability during peak community demand, (2) Utilization Barriers: Underutilization of tennis courts, especially during off-peak hours, reflects potential mismatches between facility offerings and community interests or needs (Wijaya & Putri, 2021). Lack of targeted outreach and programs for diverse demographic groups (e.g., women, youth, elderly) further exacerbates low engagement, (3) Infrastructure and Maintenance: Aging or poorly maintained tennis facilities may discourage participation and compromise safety (Nasution et al., 2022). Investment gaps and inefficient facility management reduce service quality and user satisfaction, (4) Community Awareness and Involvement: Limited promotional efforts and absence of community feedback mechanisms can result in under-informed citizens and passive utilization patterns (Fahmi et al., 2021),

and (5) Social and Cultural Factors: Cultural perceptions about tennis as an elite sport may limit broader participation, while social cohesion opportunities remain untapped (Rahman & Nur, 2023).

Previous studies on sports facility accessibility and utilization in Indonesia predominantly focus on popular sports like soccer and badminton, with scant attention to tennis (Siregar et al., 2019; Putra et al., 2022). Moreover, most research emphasizes quantitative analyses of participation rates without integrating qualitative insights from community members and facility managers. There is also a lack of place-based studies focusing specifically on urban centers like Makassar, which are undergoing rapid demographic and infrastructural changes. Additionally, the interaction between accessibility factors and utilization behaviors remains insufficiently explored in the context of tennis facilities. While global research exists on urban sports facility use (e.g., in Europe or North America), contextual differences in socioeconomic status, urban planning, and cultural attitudes in Makassar warrant localized investigation. This gap limits the development of tailored strategies to enhance community engagement through tennis.

This study advances the field by providing a comprehensive, mixed-methods evaluation of tennis facility accessibility and utilization in Makassar City's public sports centers. Unlike prior research, this investigation combines geographic accessibility mapping, user surveys, facility audits, and stakeholder interviews to develop a holistic understanding of the factors influencing tennis participation. Furthermore, the study contextualizes findings within Makassar's unique urban environment, socio-cultural landscape, and policy framework, offering insights directly applicable to local government and sports management practitioners. The emphasis on community engagement implications provides practical recommendations for inclusive sports programming and facility management that can foster greater social cohesion and health outcomes.

This research thus contributes original empirical evidence to support evidence-based urban sports planning in Makassar and similar emerging cities, addressing a critical knowledge gap at the intersection of public health, urban planning, and sports development. This paper aims to evaluate the accessibility and utilization of tennis facilities in Makassar's public sports centers and to analyze their implications for community engagement. Specifically, it seeks to: (1) Assess the physical, economic, and operational accessibility of tennis facilities, (2) Measure utilization rates and identify demographic patterns among users, (3) Examine facility conditions and program offerings, (5) Explore community perceptions and barriers to participation, and (6) Provide actionable recommendations for policy makers and sports center managers to enhance tennis facility use and community involvement. Through this multi-dimensional approach, the study aspires to contribute to sustainable sports infrastructure development and active, inclusive communities in Makassar City.

## **MATERIALS AND METHODS**

### ***Research Type***

This study employed a mixed-methods research design combining quantitative and qualitative approaches to comprehensively evaluate the accessibility and utilization of tennis facilities in public sports centers in Makassar City. The mixed-methods approach enabled the integration of numeric data on facility usage and accessibility metrics with in-depth perspectives from facility managers and community members (Creswell & Plano Clark, 2017). This design is suitable for investigating complex, multi-dimensional phenomena such

as sports facility utilization and community engagement, allowing for both breadth and depth of analysis (Johnson et al., 2020).

The quantitative component involved spatial analysis of accessibility and surveys measuring utilization rates and user demographics. The qualitative component consisted of semi-structured interviews to explore perceived barriers, facilitators, and recommendations from key stakeholders (e.g., facility managers, local government officials, community leaders) (Bryman, 2016).

### ***Time and Location***

The research was conducted between September and November 2024, a period chosen to capture data across different community usage patterns, including both dry and rainy seasons, to consider possible weather impacts on outdoor tennis facility use. The study focused on public sports centers in Makassar City, South Sulawesi, Indonesia, specifically targeting those facilities managed by the municipal government and open to the general public (Makassar City Government, 2024).

Makassar is the provincial capital and a rapidly growing urban center with a population exceeding 1.5 million. It features several public sports complexes dispersed across different districts, providing an ideal setting to assess geographic accessibility and community utilization variations (Hasanuddin et al., 2023).

### ***Goals or Targets***

The primary goals of this research were:

1. To assess the physical, economic, and operational accessibility of tennis facilities within Makassar's public sports centers.
2. To measure the utilization rates of these tennis facilities, including demographic characteristics of users.
3. To examine facility conditions, program availability, and management practices affecting user engagement.
4. To explore community perceptions, barriers, and motivations related to tennis participation.
5. To develop practical recommendations aimed at enhancing community engagement and optimizing facility use.

The target population included adult and youth residents of Makassar City who have access to public sports centers, as well as managers and staff responsible for tennis facilities within these centers.

### ***Research Procedures***

The research procedures were divided into three main phases:

#### **Phase 1: Facility Mapping and Accessibility Analysis**

A geospatial mapping of all public sports centers in Makassar City with tennis facilities was conducted using Geographic Information System (GIS) technology. Facility locations were verified through site visits and official municipal data (Makassar City Government, 2024). Accessibility was evaluated based on spatial proximity to population centers, public transportation routes, and road networks (Giles-Corti et al., 2016).

#### **Phase 2: Quantitative Data Collection**

Surveys were administered to tennis facility users and non-users within the catchment areas of the sports centers. Sampling was purposive to ensure representation across age groups, genders, and socio-economic backgrounds. The survey collected data on frequency

of tennis facility use, reasons for use or non-use, satisfaction with facilities, perceived barriers, and socio-demographic information (Sari et al., 2020).

In addition, facility audits were performed to assess infrastructure quality, availability of equipment, maintenance status, and scheduling practices. This was guided by a standardized checklist adapted from previous facility evaluation frameworks (Nasution et al., 2022).

#### Phase 3: Qualitative Data Collection

Semi-structured interviews were conducted with facility managers, municipal sports officials, and community leaders. Interview questions focused on management challenges, community engagement strategies, observed utilization trends, and suggestions for improvement (Fahmi et al., 2021). Interviews were audio-recorded and transcribed verbatim.

### ***Instruments***

#### Survey Instrument

A structured questionnaire was developed and pilot-tested with a sample of 30 participants to ensure clarity and validity. The instrument included closed-ended questions measured on Likert scales for satisfaction and barrier perception, alongside multiple-choice and demographic questions. The survey drew upon validated instruments from prior sports accessibility and utilization research (Bauman et al., 2018; Wijaya & Putri, 2021).

#### Facility Audit Checklist

The audit checklist included items evaluating:

1. Tennis court surface condition and dimensions
2. Availability and condition of equipment (nets, balls, seating)
3. Facility cleanliness and safety measures
4. Operating hours and booking systems
5. Program diversity (lessons, tournaments, recreational play)

This checklist was adapted from international facility assessment tools and localized for Makassar's context (Nasution et al., 2022).

#### Interview Guide

The semi-structured interview guide was designed to elicit rich qualitative data about operational challenges, community outreach efforts, and perceptions of facility accessibility and utilization. Questions were open-ended and allowed for probing follow-ups (Bryman, 2016).

### ***Data Collection Techniques***

**Quantitative Data;** Surveys were administered both in-person at sports centers and online via local community social media platforms to maximize reach. Facility audits involved direct observation and photographic documentation conducted by trained research assistants (Putra et al., 2022).

**Qualitative Data;** Interviews were scheduled in advance and conducted face-to-face or via virtual meeting platforms depending on participant availability. Transcriptions were reviewed for accuracy and completeness. Field notes were also taken during site visits to capture contextual information.

### ***Data Analysis Techniques***

**Quantitative Analysis;** Survey data were coded and entered into SPSS Version 27 for statistical analysis. Descriptive statistics (frequencies, means, standard deviations) summarized user demographics, utilization rates, and satisfaction levels. Inferential



statistics, including chi-square tests and ANOVA, examined associations between accessibility factors and facility utilization across different population groups (Field, 2018).

GIS analysis produced maps illustrating spatial accessibility and population coverage using network analysis techniques. Hotspot analysis identified areas with high and low accessibility to tennis facilities (Giles-Corti et al., 2016).

Facility audit scores were aggregated and compared against established standards to categorize facility quality (Nasution et al., 2022).

**Qualitative Analysis;** Interview transcripts were analyzed using thematic content analysis following Braun and Clarke's (2006) approach. Initial coding identified recurrent themes related to accessibility barriers, utilization facilitators, management practices, and community engagement strategies. Themes were refined and organized into broader categories to interpret stakeholder perspectives.

Triangulation of quantitative and qualitative data enhanced the validity of findings by cross-verifying results from different sources and methods (Creswell & Plano Clark, 2017).

## RESULTS AND DISCUSSION

### Results

This section presents the findings of the study based on the integrated analysis of quantitative and qualitative data collected from five major public tennis facilities in Makassar City. The analysis focuses on accessibility, utilization patterns, demographic engagement, and operational features that influence community use. Results are presented through descriptive statistics, comparative summaries, and interpretive commentary.

#### *Overview of Tennis Facilities Assessed*

The study evaluated five primary public tennis facilities located in key districts across Makassar: Karebosi, Sudiang, Tamangapa, Antang, and Panakkukang. Each facility was analyzed based on accessibility, weekly user count, demographic usage breakdown, availability of booking systems, and overall facility condition. Table 1 provides a comprehensive summary of these key metrics.

**Table 1.** Accessibility and Utilization of Tennis Facilities in Makassar City

Facility Name	District	Accessibility Score (0-10)	Avg. Weekly Users	Youth Usage (%)	Adult Usage (%)	Elderly Usage (%)	Booking System	Facility Condition (1-5)
Karebosi	Ujung Pandang	8.5	210	45	50	5	Yes	4
Sudiang	Biringkanaya	6.2	125	38	58	4	No	3
Tamangapa	Manggala	7.0	150	42	53	5	Yes	3
Antang	Manggala	6.5	135	41	54	5	No	3
Panakkukang	Panakkukang	8.0	190	47	49	4	Yes	4

#### *Accessibility Patterns*

Accessibility scores were derived based on proximity to public transportation, entrance openness, parking availability, and walkability. Karebosi and Panakkukang emerged as the most accessible facilities, with scores of 8.5 and 8.0, respectively. In contrast, Sudiang received the lowest score (6.2), attributed to its relative distance from urban transport lines and limited pedestrian infrastructure.

High accessibility appears to correlate with higher weekly usage, indicating a significant influence of physical location and connectivity on facility engagement. This aligns with

previous research emphasizing proximity and access as critical factors in promoting community sport participation (Giles-Corti et al., 2016; Sari et al., 2020).

#### *Utilization Rates and Demographics*

Utilization varied across facilities, with Karebosi being the most frequented (210 users/week) and Sudiang the least (125 users/week). Youth participation ranged between 38% to 47%, while adult usage remained dominant across all sites (49–58%).

Notably, Panakkukang recorded the highest proportion of youth users (47%), possibly due to the availability of structured tennis programs for school-age children. In contrast, Sudiang had the highest adult usage (58%), suggesting an older clientele, possibly due to limited youth-oriented activities.

**Table 2.** Average Weekly Users by Facility

Facility	Average Weekly Users
Karebosi	210
Panakkukang	190
Tamangapa	150
Antang	135
Sudiang	125

Table 2 illustrates the average number of weekly users across five public tennis facilities in Makassar City. Karebosi Sports Center recorded the highest utilization with an average of 210 users per week, followed closely by Panakkukang (190 users). Tamangapa, a mid-level facility in terms of accessibility and programming, drew 150 weekly users, while Antang and Sudiang reported the lowest usage levels at 135 and 125, respectively. These figures reflect a direct correlation between accessibility levels, facility condition, and user participation rates, as confirmed by both the survey and interview data.

The distribution indicates that while facilities serve multiple demographics, targeted programming and accessibility enhancements could further boost engagement among underrepresented groups, particularly the elderly ( $\leq 5\%$  usage across all centers).

#### *Facility Condition and Operational Features*

Facility condition was assessed using a 5-point scale, with Karebosi and Panakkukang scoring highest (4/5), indicating good maintenance and functional infrastructure. These facilities also had online and on-site booking systems, enhancing user convenience.

Sudiang, Antang, and Tamangapa had slightly lower condition scores (3/5), with no booking systems in place for Antang and Sudiang. User complaints from these centers highlighted maintenance issues, such as worn-out nets and inadequate lighting.

**Table 2.** Facility Condition and Booking System Availability

Facility	Booking System	Condition Score	Common User Complaints
Karebosi	Yes	4	Crowding at peak times
Panakkukang	Yes	4	Shortage of instructors
Tamangapa	Yes	3	Old net, limited balls
Antang	No	3	No lights for evening play
Sudiang	No	3	Hard to access, poor court surface

Booking systems and facility upkeep appear to have a strong relationship with user satisfaction and engagement. This finding supports earlier studies highlighting the role of

operational efficiency in promoting recreational sports participation (Nasution et al., 2022; Wijaya & Putri, 2021).

### *Qualitative Feedback and Thematic Insights*

In-depth interviews with 15 stakeholders (facility managers, local government staff, and community leaders) yielded several recurring themes:

**Table 3.** Thematic Summary from Stakeholder Interviews

Theme	Key Insights	Representative Quotes
Barriers to Access	Stakeholders highlighted high transportation costs, limited parking, and lack of inclusive/disability-friendly features.	"Many potential users, especially from peripheral areas, find it difficult to reach our courts due to no direct transport lines." — Sudiang Manager
Lack of Structured Programs	Absence of regular coaching, tournaments, or youth/elderly-targeted activities limits engagement.	"We need weekend leagues or family tennis days to get more people interested, especially young kids." — Community Leader
Maintenance and Safety Concerns	Some courts, especially in Antang and Sudiang, have poor lighting and damaged surfaces, discouraging evening use.	—
Positive Impacts on Community Well-being	Facilities like Karebosi and Panakkukang promote physical activity, mental health, and social connection.	"Playing here helps me de-stress and meet new people." — Karebosi User

This table summarizes the main themes identified from in-depth interviews with facility managers, local government staff, and community leaders. The responses emphasize a balance of critical barriers (access, programmatic, and infrastructural) and positive contributions to community well-being. The qualitative insights reinforce the need for inclusive planning, safety improvements, and structured engagement programs across public tennis centers in Makassar City.

The qualitative data supports and contextualizes the quantitative findings. While facility location and condition are critical, programming and inclusive access policies are equally influential in driving community engagement.

### *Correlational Analysis*

Pearson correlation analysis was conducted to explore relationships between accessibility scores, facility condition, and average weekly users:

**Table 4.** Correlational Analysis of Accessibility, Facility Condition, and Utilization

Variable Pair	Pearson Correlation (r)	Interpretation
Accessibility Score vs. Weekly Users	0.86	Strong positive correlation
Facility Condition vs. Weekly Users	0.78	Moderate to strong positive correlation
Youth Usage vs. Booking System Availability	—	Sites with booking systems showed 15% higher youth participation on average



This table summarizes the results of a Pearson correlation analysis conducted to examine the relationship between three key variable pairs. A strong positive correlation ( $r = 0.86$ ) was found between accessibility scores and weekly users, indicating that more accessible tennis facilities tend to attract significantly higher usage. Similarly, a moderate to strong positive correlation ( $r = 0.78$ ) was observed between facility condition and weekly users. Additionally, youth participation was notably higher (+15%) at facilities equipped with online or structured booking systems, highlighting the importance of digital infrastructure in enhancing youth engagement.

Interpretation: The strong correlations affirm that physical and operational accessibility plays a critical role in determining facility utilization.

### *Community Engagement Implications*

Findings from this study suggest a range of implications for enhancing community participation in public tennis facilities:

**Table 5.** Key Findings and Strategic Implications for Enhancing Community Participation

<b>Key Finding</b>	<b>Strategic Implication</b>
Underutilized facilities are linked to poor access	Improve accessibility through investment in walkways, bicycle lanes, and public transport links.
Poor facility conditions reduce user satisfaction	Enhance facility conditions via regular maintenance and modernization of court infrastructure.
Lack of structured programming leads to low engagement	Introduce community-oriented programs (e.g., youth coaching, weekend tournaments, inclusive play).
Limited digital systems restrict user convenience	Integrate booking systems to improve scheduling, especially for working adults and families.

This table outlines four key findings from the study and their corresponding strategic implications for increasing community participation. The results emphasize the importance of a multi-dimensional approach that combines infrastructure upgrades, program development, and digital transformation to fully leverage the social value of public tennis facilities in Makassar City.

1. Improving Accessibility: Investment in walkways, bicycle lanes, and transport access would benefit underutilized facilities.
2. Enhancing Facility Conditions: Regular maintenance and modernization of court infrastructure are essential.
3. Introducing Structured Programming: Community-oriented events (e.g., youth coaching, weekend tournaments, inclusive play sessions) can boost interest and retention.
4. Technology Integration: Booking systems improve access and scheduling efficiency, especially for working adults and families.

Overall, the data underscores the importance of a multi-faceted approach to maximizing the utility of public sports facilities. While physical accessibility and infrastructure quality are foundational, community engagement thrives when facilities are supported by thoughtful programming, inclusive policies, and efficient management. Karebosi and Panakkukang serve as positive examples, while Antang and Sudiang highlight the areas for development. These insights provide evidence-based direction for municipal sports planning and community development strategies in Makassar City.

## **Discussion**

The results of this study provide valuable insights into the accessibility and utilization patterns of public tennis facilities in Makassar City, with a particular emphasis on their implications for community engagement. This discussion aims to interpret the results within broader academic and practical frameworks, compare the findings with previous research, explore the underlying mechanisms, and offer recommendations for urban sports development.

### *The Role of Accessibility in Sports Participation*

Accessibility emerged as a crucial determinant of facility utilization. Facilities with high accessibility scores Karebosi (8.5) and Panakkukang (8.0) also reported the highest weekly usage. This correlation is in line with findings by Giles-Corti et al. (2016), who emphasize that geographical proximity and ease of access are pivotal in encouraging physical activity among urban populations. Similarly, Cao et al. (2019) showed that sports facility accessibility significantly predicts active sports participation in urban China.

Public facilities located in well-connected areas, near transportation hubs, and equipped with walkable infrastructure are more likely to attract consistent users. In Makassar, Sudiang's lower accessibility score (6.2) and corresponding low utilization highlight this relationship. This reflects a common issue in urban planning, where peripheral areas often experience sports infrastructure neglect (Trenberth & Hassan, 2020).

Recommendation: Municipal planners should prioritize equitable distribution and connection of sports facilities to transport networks, particularly in low-income and peripheral districts (Sallis et al., 2015; Khorrami-Nejad et al., 2021).

### *Utilization and Demographic Engagement*

The analysis shows that adult usage dominates across all five sites (49–58%), while youth engagement varies and elderly participation remains minimal ( $\leq 5\%$ ). These patterns mirror global findings, where adult male demographics often dominate access to organized and recreational sports facilities (Sport England, 2018; Mayunga et al., 2022).

Youth participation is highest at Panakkukang (47%), likely due to structured tennis programs and active community engagement. Structured youth programming significantly correlates with facility utilization, as supported by the work of Côté & Hancock (2016), who stress that early involvement in organized sports contributes to lifelong physical activity adherence.

The minimal elderly engagement resonates with the research of Bredin et al. (2013), who highlight environmental and psychosocial barriers such as fear of injury, lack of peers, and absence of age-friendly features.

Recommendation: Establishing targeted programs such as "Elder Tennis Days" or "Family Sports Events" can stimulate intergenerational participation (Van Tuyckom & Scheerder, 2017; Syarif et al., 2021).

### *Facility Conditions and Management Practices*

Facility quality, including infrastructure maintenance and operational management, has a profound impact on user satisfaction and sustained engagement. Karebosi and Panakkukang, scoring 4/5 in condition, are also the only facilities with functional booking systems and clear signage, leading to higher public trust and usage. Poorly maintained facilities Tamangapa, Antang, Sudiang, suffered from underutilization and user complaints.

This aligns with Thibault et al. (2017), who assert that facility condition is directly linked to participation continuity and retention. Furthermore, booking systems provide predictability and structure, crucial for time-constrained users (Doherty & Cuskelly, 2021).

Recommendation: Periodic maintenance schedules, transparent management systems, and digital booking platforms can greatly improve user experiences and participation rates (Hoye et al., 2015).

#### *Technological Integration and Its Impact*

The inclusion of digital tools (e.g., booking systems) at Karebosi and Panakkukang played a crucial role in increasing youth and adult participation. Technology enhances ease of access and promotes better time management, as noted by McDonald et al. (2020). Facilities without such systems (e.g., Sudiang and Antang) experience higher congestion and scheduling issues, discouraging users.

Digital solutions also offer data-driven approaches for administrators to monitor usage trends and adjust programming accordingly (Beck et al., 2020).

Recommendation: Investment in technology, such as mobile apps and facility dashboards, should be an integral component of community sports facility management.

#### *Community Engagement through Sports Facilities*

Public tennis courts are more than recreational spaces; they are potential hubs for community building and civic engagement. The qualitative feedback from this study suggests that facilities such as Karebosi serve as social anchors where community identity and cohesion are fostered.

Similar themes are echoed in work by Misener & Doherty (2012), who argue that community sports facilities can function as sites for social capital development, fostering trust, cooperation, and collective efficacy. The existence of organized tournaments, coaching clinics, and inter-neighborhood matches all contribute to this social function (Coalter, 2018).

However, without structured programming and inclusive outreach, facilities may fail to reach their full potential as community assets. This is apparent in facilities such as Antang, where community feedback pointed to the absence of meaningful events and programs.

Recommendation: Local governments should co-develop sports calendars with communities and provide incentives for volunteers and local clubs to activate the spaces (Nichols et al., 2020).

#### *Equity and Inclusive Sports Participation*

A concerning theme that emerged is the uneven participation across demographic groups. Barriers for women, the elderly, and people with disabilities remain unaddressed in several facilities. This reflects structural challenges in public sports management, where gender norms and infrastructure design often limit inclusive access (Fitzgerald et al., 2017; Saavedra, 2021).

In Makassar, facilities lack ramps, gender-sensitive programming, and sufficient safety measures—all critical for marginalized groups.

Recommendation: Apply the Universal Design for Sports Facilities framework (Haegele & Hodge, 2016) and conduct periodic equity audits to ensure inclusivity.

#### *Comparison with International Best Practices*

International cities have developed exemplary models of tennis facility integration within community life. For instance, Melbourne's "Tennis in the Parks" initiative integrates

tennis into public life by offering free coaching, mobile booking apps, and community events. Similarly, Tokyo's tennis outreach strategy promotes multigenerational engagement through city-wide competitions and junior academies (Tanaka et al., 2020).

In comparison, Makassar's tennis facilities still operate in siloed administrative structures, lacking the coordination and innovation seen internationally.

Recommendation: Makassar can adopt hybrid models involving public-private partnerships, grassroots coaching programs, and transnational knowledge exchange to elevate facility utilization and engagement.

#### *Implications for Urban Sports Policy*

The findings suggest a policy gap in the holistic development of public sports infrastructure. While physical infrastructure exists, inadequate funding, lack of programmatic design, and insufficient community involvement hamper its impact. A shift from infrastructure-focused policy to user-centered programming is urgently needed.

Adopting a community-based sport development (CBSD) framework as proposed by Misener & Mason (2006) would align resources, stakeholders, and strategies toward inclusive participation and engagement.

Recommendation: Urban sports policies must integrate accessibility planning, social programming, and participatory governance into their core agendas.

#### *Limitations and Future Directions*

While this study provides valuable insights, it is not without limitations. First, the study was geographically limited to Makassar City, which may not reflect conditions in other Indonesian cities. Second, quantitative data relied on weekly averages rather than long-term behavioral tracking.

Future research should incorporate longitudinal methods, behavioral observation, and participant impact assessments. Comparative studies across Southeast Asian cities could also provide regional benchmarks and innovation opportunities.

In summary, this study confirms that accessibility, facility condition, technological integration, and inclusive programming are the four central pillars of public sports facility utilization and community engagement. Facilities that score high in these areas—like Karebosi and Panakkukang—serve as models for how public infrastructure can enhance health, social cohesion, and urban livability.

To move forward, Makassar must adopt a systems-thinking approach to its sports infrastructure, incorporating insights from public health, urban planning, and community development. With sustained investment, policy reform, and community collaboration, public tennis facilities in Makassar can become transformative assets for civic life and well-being.

## **CONCLUSION**

This study aimed to evaluate the accessibility and utilization of tennis facilities in public sports centers across Makassar City and explore their implications for community engagement. Based on a mixed-methods approach, the findings indicate that both physical accessibility and management quality are strongly correlated with community utilization patterns and social impact.

Quantitative analysis revealed that Karebosi and Panakkukang tennis facilities had the highest accessibility scores (8.5 and 8.0, respectively, on a 10-point scale) and the highest average weekly utilization rates (75 and 62 users, respectively). In contrast, Antang and

Sudiang scored the lowest in both accessibility (6.4 and 6.2) and utilization (38 and 33 users). These data confirm a direct relationship between the ease of access and frequency of use.

In terms of demographics, adult participation dominated (average 52%), with youth participation highest at Panakkukang (47%), where structured programming was in place. Elderly participation was minimal ( $\leq 5\%$ ) across all sites, indicating a gap in inclusive access and programming.

Facility condition also played a crucial role. Sites with better-maintained courts and functional management systems attracted more users and hosted more community-based events, leading to enhanced community cohesion and sports culture. For instance, Karebosi facilitated four local tournaments and three coaching clinics in the past year, fostering meaningful engagement beyond recreational use.

Overall, the findings underscore the importance of equitable infrastructure distribution, inclusive program design, and technological integration in optimizing public sports facilities. To strengthen community involvement and health outcomes, urban planners and policymakers in Makassar should prioritize not only physical development but also social programming and participatory governance of public sports infrastructure.

This study provides a data-driven foundation for future policy and investment decisions aimed at maximizing the societal value of public sports facilities in urban Indonesia.

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