

Assessing the Societal Value of Sports Engagement: Evidence to Support Active Living as Intrinsic to Sustainable Asian Urbanization

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ABSTRACT

The rapid expansion of urban areas has exacerbated public health challenges including non-communicable diseases and reduced well-being. To address such issues, integrating community needs into urban planning through the 'healthy cities' concept has gained prominence. While literature recognizes associations between physical activity, health and social progress, limited research examines the multidimensional impacts of sports participation across diverse Asian settings. This study aimed to analyse the effects of sports engagement on health and sustainability indicators among urban Asian populations. A mixed-methods approach combined surveys of 87 residents aged 18-65 years in three group with stakeholder discussions. This study explores the associations among engagement in recreational activities, individuals' subjective assessment of their health, behavioural patterns, overall quality of life, utilization of community infrastructure, and participation in community activities. Various statistical analyses were employed to investigate these relationships. The findings indicate a significant positive correlation between engaging in regular physical activity and experiencing enhanced health status, well-being, social connections, and access to community infrastructure. Notably, the proximity of sports facilities to residential areas, public spaces, and workplaces emerged as the most influential predictor of activity levels. Unexpectedly, women and older adults exhibited comparable or higher involvement than counterparts. Residents of Group A, despite infrastructure barriers, demonstrated the highest frequencies. Grassroots initiatives temporarily utilizing public areas cost-effectively encouraged participation. Recognizing recreation holistically within urban planning empowers inclusive progress. Evidence supports mainstreaming affordable, equitable sports provision as basic urban infrastructure. Ongoing academic investigations aimed at understanding the factors influencing participation provide valuable insights for developing fair strategies that maximize the role of recreational activities in fostering healthy and equitable Asian communities during times of change.

1. Introduction

The phenomenon of urbanization has become a significant global trend with far-reaching effects on the socio-economic landscape of the 21st century. More than half of the world's population now resides in urban areas, presenting contemporary cities with unprecedented

challenges related to infrastructure development, environmental sustainability, and public health [1-3]. In the Asian region, which is characterized by the presence of the largest urban agglomerations globally, the rapid expansion of cities has exacerbated various challenges, including

pollution, sedentary lifestyles, non-communicable diseases, and issues related to social connectivity [4].

In response to the health crises amplified by rapid urbanization, the concept of "healthy cities" has emerged as a significant approach, emphasizing the integration of infrastructure planning with the well-being of communities [5-7]. Existing literature establishes clear connections between the built environment, levels of physical activity, and overall health outcomes of urban residents [8, 9]. Consequently, participating in sports and recreational activities emerges as a crucial factor affecting individuals' health and acting as a catalyst for enhancing social cohesion and community attachment [10, 11].

However, despite the recognition of this relationship, empirical research on the role and potential of sports engagement in promoting health and quality of life in diverse Asian urban contexts is limited [12]. Furthermore, existing studies primarily focus on the economic impacts of sports, neglecting the multidimensional socio-cultural benefits and their connections to sustainable urban development strategies [13, 14]. This research aims to bridge these gaps by conducting a comprehensive analysis of the effects of sports participation on health outcomes and indicators of thriving communities among urban populations in Asia.

Projections indicate that by 2050, more than 64% of Asia's population will be living in urban areas, highlighting the prevalence of urban challenges on developmental agendas [15-17]. The rapid growth of urban agglomerations has led to environmental degradation in many regions, characterized by pollution, habitat deterioration, and the decline of green spaces [4]. These changes in the physical environment have contributed to an increase in sedentary lifestyles and the prevalence of non-communicable diseases associated with physical inactivity [18].

The prevalence of non-communicable diseases, including heart disease, diabetes, and specific cancer types, has surpassed that of communicable diseases, emerging as the primary contributors to mortality, particularly among urban populations [19, 20]. Additionally, residing in

densely populated areas has led to decreased social interactions and an increased prevalence of mental health disorders [21-23]. Failure to address these trends may place excessive strain on healthcare systems that are already under pressure.

At the core of these multifaceted health risks lies a disconnection between infrastructure development and consideration for human well-being [24, 25]. While certain economic indicators of Asian cities continue to advance, they are falling short on social progress measures that prioritize health, happiness, and community [26]. Achieving sustainable improvements requires a shift in paradigm that integrates the needs of communities into the urban planning process [27].

Engaging in regular physical activity offers significant physical and mental benefits, reducing the risk of obesity, heart disease, depression, and various cancers [28-30]. Sports provide an avenue for individuals to incorporate enjoyable exercise into their daily routines, promoting holistic well-being [31, 32]. In addition to the health impacts, sports have the potential to address prevalent issues associated with urbanization by fostering social interactions and a sense of community [10, 11].

Strong social networks contribute to the development of informal support systems and enhance neighbourhood social control, thus benefiting urban safety [33]. Regular users of recreational facilities report a stronger sense of attachment and emotional connection to their local communities [34]. These social linkages are associated with increased subjective well-being and life satisfaction [35-37]. For municipalities, investing in sports infrastructure provides an opportunity to create vibrant districts that stimulate local economies [38].

While the numerous advantages of public sports facilities are widely acknowledged, Asia still falls behind more developed regions in terms of their availability, accessibility, and usage [39-41]. Various barriers contribute to this disparity, including insufficient investments and a reliance on automobiles, which hinders safe access to these amenities [42, 43]. Furthermore, there

is a need for additional research to comprehend the diverse factors that influence sports participation in cities with distinct social contexts. This underscores the significance of evidence-based planning that considers local nuances.

This research seeks to bridge existing knowledge gaps by conducting a comprehensive evaluation of the impacts of sports participation on health outcomes and sustainable development indicators across diverse Asian urban communities. The primary objectives encompass:

- A mixed-methods assessment of physical activity prevalence, patterns, and associated determinants among residents aged 18-65 years in Group A, Group B, and Group C. These locations offer diversity in developmental progress to enhance the cross-cultural applicability of insights.

- A quantitative investigation of relationships between various levels of recreational engagement and metrics of individual well-being, including self-rated health status, health behaviours, healthcare utilization patterns, quality of life, and life satisfaction scores.

- A quantitative examination of associations between community-level sports involvement patterns and broader neighbourhood-level indicators representing thriving communities. These indicators include perceptions of local amenities provision, social capital indices, place attachment, and involvement in civic affairs.

- A contextual qualitative exploration of stakeholders' perspectives in each city to understand nuanced motivators and barriers to participation beyond individual attributes alone. Targeted discussions with health departments, urban planners, sports practitioners, and community representatives will offer policy-relevant explanations that supplement quantitative findings.

- The study aims to derive evidence-based policy recommendations to promote population health while advancing social progress through the affordable and equitable mainstreaming of sports participation within the developmental agenda of Asian urbanization. The suggestions will prioritize maximizing recreational

autonomy through affordable, organic, and community-driven solutions.

The study adopts a mixed sequential explanatory design using surveys informed by qualitative contextual insights to address the limitations of singular approaches. By conducting rigorous reviews of literature from multidisciplinary spheres over the past decade, a robust conceptual framework integrating sustainable development principles with community wellness guides the operationalization of variables.

Methodological triangulation, addressing causation through quasi-experimental evaluation of sports access improvements, aims to establish recommendations on a strengthened evidential footing. As Asia faces intensifying health crises amid transformations, strengthening population-level resilience holds significance beyond regional borders. Hence, the findings will offer timely guidance for the improved integration of recreation within urban systems globally.

Establishing sports definitively as a population health priority necessitates recognizing its holistic value proposition. While economic indices rightly measure socioeconomic development metrics, community health importantly reflects social progress in its own right [44]. As planners increasingly leverage cultural assets that drive favourable social determinants of health, quantifying multifaceted recreational inputs merits priority [45].

Appreciating the complex interactions between urban systems and inhabitants underpins equitable progress [46]. Prioritizing recreational potentials necessitates sensitizing diverse actors to appreciate the diverse influences on progress. Generating multi-stakeholder buy-in demands empowering cross-sectoral cooperation [47]. This study aims to advance evidence-based solutions by accounting for such intricacies towards maximizing participatory sports roles.

In conclusion, the study strives to comprehensively illuminate the societal worth of recreation to strengthen the case for active living as intrinsic to building healthy, equitable, and thriving future communities across

densifying Asian regions and beyond. The findings will offer timely evidence-based guidance addressing population health and progress through sustainable sports planning suited to local contexts.

2. Literature review and fundamental definitions

2-1. Evolution and Development of the Asian Games

The initial 15 editions of the Asian Games offer valuable insights into the development and evolution of sports in Asia. These Games, held biennially since 1951, have experienced significant growth in terms of scale and scope. This analysis examines the key highlights and trends observed in the Asian Games leading up to the 2006 edition in Doha.

The inaugural Asian Games in New Delhi in 1951 witnessed the participation of 11 nations, signifying the emerging sporting landscape in post-colonial Asia. Noteworthy performances came from Japan, India, and Iran, who topped the medals table. Although the performance standards were relatively modest, it marked the beginning of international sporting engagement across the continent. Subsequent editions in Manila (1954) and Tokyo (1958) further solidified this growth with an increase in participating nations to 19 and 20, respectively. Japan reaffirmed their early dominance, securing the most medals in both events.

During the 1960s, the Asian Games faced several organizational challenges. The Jakarta Games held in 1962 witnessed a decline in participation, with only 16 teams taking part, largely due to political absences, including China and North Korea. However, the subsequent editions in Bangkok in 1966 and 1970 revitalized the event, attracting 18 and 25 participating teams, respectively. Thailand emerged as a dedicated host for the Asian Games, with King Bhumibol Adulyadej providing leadership. Notably, in 1970, Iran posed a significant challenge to Japan's dominant position in sports, achieving their best-ever second-place performance, mainly attributed to their exceptional wrestling prowess.

A significant turning point occurred at the 1974 Tehran Games, which witnessed broader participation from West

Asian countries, including the debut appearances of Gulf states. This increased geopolitical representation was accompanied by a record-setting 25 participating teams. Iran capitalized on the advantage of hosting the event and surpassed Japan, securing the top position in terms of gold medals, showcasing their rising prominence on the continental stage. Subsequent editions of the Asian Games continued to witness an increase in participation as the political landscapes evolved, with new countries joining the Asian Games community.

In the late 1990s, a "Big Three" sporting dynamic emerged, which endures to this day. China's rise to prominence was solidified with gold medal sweeps in the 1990 Beijing and 1994 Hiroshima Games, displacing Japan's dominance after four decades. South Korea soon joined as perennial contenders, coming remarkably close to China in the 1986 Seoul Games, with just a single gold medal separating the two nations. Beyond these frontrunners, newly independent countries in Central Asia, such as Kazakhstan, thrived and consistently placed in the top ten.

Entering the 21st century, the 2006 Doha Games marked the culmination of the first 15 editions, boasting a spectacular participation rate of 13,000 athletes, surpassing even the Olympics in scale. China, Korea, and Japan continued to set the pace, while strong performances from regional hubs like Qatar reflected the ever-growing engagement and competitiveness of Asian sports. The Asian Games have transformed from humble beginnings into a premier multi-sport spectacle, symbolizing Asia's progress on the global sporting stage.

The 16th Asian Games were hosted in Guangzhou, China in 2010. China maintained its dominance, securing a record 221 total medals, including 85 golds. However, the Games were overshadowed by political tensions, as Taiwan was compelled to compete under the contested name "Chinese Taipei." Meanwhile, Japan and South Korea engaged in a close battle for second and third place in the overall medals table.

Incheon, South Korea hosted the 17th Asian Games in 2014. China extended its winning streak, claiming 100 gold medals and a total of 238 medals. Their gold medal tally was more than double that of second-placed Japan. Numerous national records and world bests were set across various sports. The Games also marked the separate participation of North Korea from South Korea, a departure from their joint participation since 1991.

The 18th Asian Games were awarded to Jakarta and Palembang, Indonesia for 2018, serving as a platform to showcase the country's development. However, construction delays threatened to postpone the Games until the Indonesian government mobilized resources to ensure successful hosting. China once again topped the medal table with 132 golds and 238 medals in total. Japan secured second place with 45 golds. The Games also witnessed the introduction of eSports disciplines like League of Legends and StarCraft II, representing the growing interests of Asia.

Lastly, the 19th Asian Games were held in Hangzhou, China in 2022. The Games may include new disciplines that reflect the future interests of Asia as the event continues to evolve into its seventh decade of continental sport. Moving forward, the Asian Games will strive to maintain its status as one of the largest multi-sport events,

while navigating challenges related to health, diplomacy, and sustainable development among the 45+ participating nations [48-57].

Therefor, this section presents a conceptual overview of the significant transformations that have influenced the Asian Games since its establishment in 1951. Figure 1 visually illustrates the key milestones that have shaped the development of this sporting event. In its early editions, the Asian Games played a crucial role in fostering international sports relations across the post-colonial Asian continent. During these formative years, there was a noticeable growth in both the scale of the Games and the participation of various nations. A pivotal moment occurred during the 1974 Tehran Games, which expanded the geopolitical representation and set the stage for a transformed competitive landscape. The culmination of this prosperous growth trajectory can be observed in the 2006 Doha Games, which achieved standards comparable to the Olympic Games. As depicted in the infographic, the Asian Games have evolved from modest beginnings into a prestigious multi-sport spectacle, symbolizing the progress of Asian sports on the global stage throughout its seven-decade journey.



Figure 1: A Conceptual Delineation of the Developmental Phases within the Progression of the Asian Games from 1951 to the Present.

2-2- Asia: A Continent of Diverse History and Increasing Global Influence

Covering more than 30% of the Earth's land area, the vast continent of Asia boasts a remarkable range of landscapes, cultures, and populations. From the arid deserts of Western Asia to the tropical islands of Southeast Asia and the expansive Siberian taiga, no other region on the planet exhibits such a wealth of geographical and climatic variations. This diversity has facilitated the emergence of early human civilizations and continues to shape the dynamic nature of Asia in the modern era [58].

2-2-1- The Origins of Civilization in Western Asia

Over 10,000 years ago, sedentary societies began to develop in Western Asia, laying the groundwork for organized communal living. Along the Tigris and Euphrates rivers in Mesopotamia, the Sumerians established one of the earliest true civilizations around 3500 BC, characterized by advancements in art, technology, astronomy, and a system of writing. Further east, the ancient Indus Valley Civilization thrived between 3300 and 1300 BC along the Indus River valley, encompassing present-day Pakistan and northwest India. These regions served as cradles of civilization, fostering enduring traditions of agriculture, urban planning, trade, and cultural exchange across Eurasia.

Successive empires, such as the Assyrians, Babylonians, Persians, and Arabs, fostered dynamic cultural amalgamations while simultaneously establishing expansive trade and diplomatic connections that extended to Africa, India, and China. The advent of the Islamic Golden Age in the 8th century marked a period of scientific and intellectual renaissance under Arab governance, spanning Western Asia, North Africa, and Spain. Noteworthy progress in fields like mathematics, astronomy, medicine, and engineering laid the groundwork for the development of the modern world. During the Medieval Period, the Silk Road trade routes played a crucial role in facilitating robust cultural exchanges among Asian societies [59, 60].

2-2-2- From Ancient Kingdoms to Modern Nation-States

In Northeast Asia, China emerged as the world's oldest continuous civilization, establishing the first centralized state by the 21st century BC. Successive dynasties expanded China's sphere of influence while nurturing developments in philosophy, calendar systems, architecture, cuisine, and more. To the east, the Korean kingdom of Goguryeo and the Japanese state of Yamatai gradually unified their respective territories.

In South Asia, the Mauryan Empire succeeded the Indus Valley Civilization in the 4th century BC under the rule of Emperor Ashoka, representing one of ancient India's most significant dynasties. The empire implemented legal reforms and principles of Dharma that continue to influence Hinduism, Buddhism, and Jainism to this day. The subsequent Gupta Empire witnessed a classical Indian golden age characterized by advancements in astronomy, mathematics, and metallurgy.

In Southeast Asia, the Indianized kingdoms of Funan and Chenla emerged as early maritime trading states along the present-day territories of Cambodia and Vietnam. From the 9th century onward, the Srivijaya Empire controlled the Straits of Malacca, establishing a Buddhist cultural influence [61-64].

2-2-3- Transition to Modern Nation-States

While imperial rule shaped Asia for centuries, the 19th century witnessed the rise of nation-states as recognized entities on the global stage. As Chinese, Indian, and Japanese imperial powers declined, Western colonialism took hold until the mid-20th century. Following the era of colonization, post-colonial Asia underwent modernizing reforms, with most nations adopting mixed economies and representative governments [61-64].

2-2-4- Contemporary Geopolitics and Development

Present-day Asia comprises 48 nation-states with vast differences in geography, resources, politics, and standards of living. China has surpassed the United States as the world's largest economy based on purchasing power parity, and India continues to experience significant economic

growth. Regional security and cooperation are pursued through organizations such as the Association of Southeast Asian Nations (ASEAN) and the Shanghai Cooperation Organisation (SCO).

Despite some areas still grappling with poverty and conflict, living conditions have greatly improved across the continent in recent decades due to urbanization, investments in public health, and education. Life expectancies in East Asian "tiger economies" like Japan and South Korea now surpass Western averages. Moreover, regional initiatives focus on sustainable energy, environmental protection, and disaster resilience.

Moving forward, the growing global influence of Asia will significantly impact economic and geopolitical dynamics. Nonetheless, the continent's rich diversity also gives rise to internal challenges, such as territorial disputes and religious extremism. Asian nations are committed to striking a delicate equilibrium between strategic interests, cultural appreciation, and fair governance, thus preserving their collective legacy of innovation, trade, and

intercultural interactions. By doing so, their objective is to ensure the continuity of the world's oldest continuously existing civilizations into the future [65-67].

Figure 2 presents a conceptual framework that illustrates the historical development of Asia, highlighting the significant influences and transformations that have shaped the region. In ancient times, seminal civilizations established the groundwork for enduring cultural traditions and practices. During periods of empire, territories were consolidated alongside scientific advancements. The 19th century witnessed a resurgence of sovereign identities as nations asserted their independence. Following this era of decolonization, post-independence reforms and recent socio-economic initiatives have propelled a remarkable transition towards modern nationhood. Throughout the phases of imperial authority, decolonization, and ongoing developmental agendas, dynamic forces have interacted in diverse ways, continually reshaping the geopolitical and socio-cultural landscape of Asia.



Figure 2: A Conceptual Framework Depicting the Evolutionary Phases of Geopolitical Change Marking Asia's Enduring Heritage and Rising Global Influence.

2-3- Fundamental Definitions:

2-3-1- Physical Activity

Physical activity refers to the engagement in bodily movements that require energy expenditure. It encompasses various dimensions of fitness, including muscular strength, muscular endurance, aerobic capacity, flexibility, and body composition [68].

2-3-2- Interaction

Interaction refers to the process of individuals or entities coming together and collaborating in a cohesive manner towards a common action or goal. It involves harmonization and agreement in working together effectively [69, 70].

2-3-3- Sustainable Urban Development

Sustainable urban development is the pursuit of improving the quality of life in urban areas while considering the carrying capacity of the environment and meeting the present needs without compromising the ability of future generations to meet their own needs. Initially rooted in environmental concerns, sustainable development has evolved to encompass cultural, social, and economic aspects.

The concept of sustainable urban development spans various scales, from neighbourhoods and districts to major cities and global sustainability. It is important to recognize that the principles of sustainability are not rigid and unchanging criteria but serve as guiding principles towards achieving sustainable goals [71, 72].

2-3-4- Urban Health

The term "health" is a widely used concept with multiple dimensions, and it encompasses seven components as health indicators. According to experts in the field, a healthy city is built upon the well-being of its inhabitants, and each individual significantly contributes to the overall urban health. Consequently, the management of urban health lies within the purview of health organizations, educational and developmental institutions, and environmental agencies. These entities must think innovatively and collaborate wisely to implement novel measures. Individual health is interconnected with

community health, and community health reciprocally influences individual well-being [73, 74].

2-3-5- Urban Populations in Asia

Asia is home to a rich tapestry of diverse ethnic groups that have adapted to the varied water, weather, and climates across the continent. This diversity encompasses polar climates in the northern regions, similar regions to northern Europe, temperate climates, subtropical climates, as well as vast desert areas in central and western Asia. Asian ethnic groups have adapted to mountains, deserts, grasslands, and forests, while coastal regions have developed various transportation methods. The Asian population showcases remarkable cultural, religious, economic, and historical diversity.

The most populous countries in Asia, listed in descending order, are the People's Republic of China, India, Indonesia, Pakistan, Bangladesh, Japan, the Philippines, Vietnam, Iran, Thailand, Myanmar, and South Korea.

Central Asia, or Middle Asia in a common definition, includes the five republics of the former Soviet Union: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, and Xinjiang in western China. In a broader definition, Mongolia, Afghanistan, and northern Pakistan are also included. Central Asia is home to Turkic, Indian, Iranian, and Mongolian ethnic groups.

East Asia comprises China, Hong Kong, Macau, Taiwan, Japan, South Korea, and sometimes includes Vietnam. The major ethnic groups in East Asia are Han Chinese, Yamato Japanese, and Koreans, with other ethnic groups also present.

South Asia, in a general definition, includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Afghanistan, and Sri Lanka.

The term West Asia largely corresponds to the Middle East. West Asia includes Armenia, the Republic of Azerbaijan, Bahrain, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, the United Arab Emirates, and Yemen.

Regarding cultural groups, the major ethnic groups in West Asia include Arabs (approximately 150 million),

Turks (around 55 million), Kurds (around 45 million), and Persians (approximately 75 million). Alongside these major groups, there are smaller yet diverse ethnic populations, such as Greeks (600,000), Jews (6.2 million), Copts (7-11 million), Assyrians (around 400,000), Armenians, Lurs (around 8 million), Azerbaijanis (around 35 million), and other minorities, including Mandeans, Yazidis, Circassians, and others. The desert geography prevalent in many West Asian countries has given rise to extensive tribal groups, including Arab Bedouin tribes [75-77].

Figure 3 illustrates a conceptual framework that outlines the theoretical foundations of key constructs central to the research. The framework establishes clear definitions of fundamental concepts such as physical activity, social dynamics, sustainability, population metrics, and regional diversity. These operational definitions provide conceptual clarity regarding the interconnected relationships between recreational engagement, community progress factors, and the well-being of individuals, which are integral to the study.

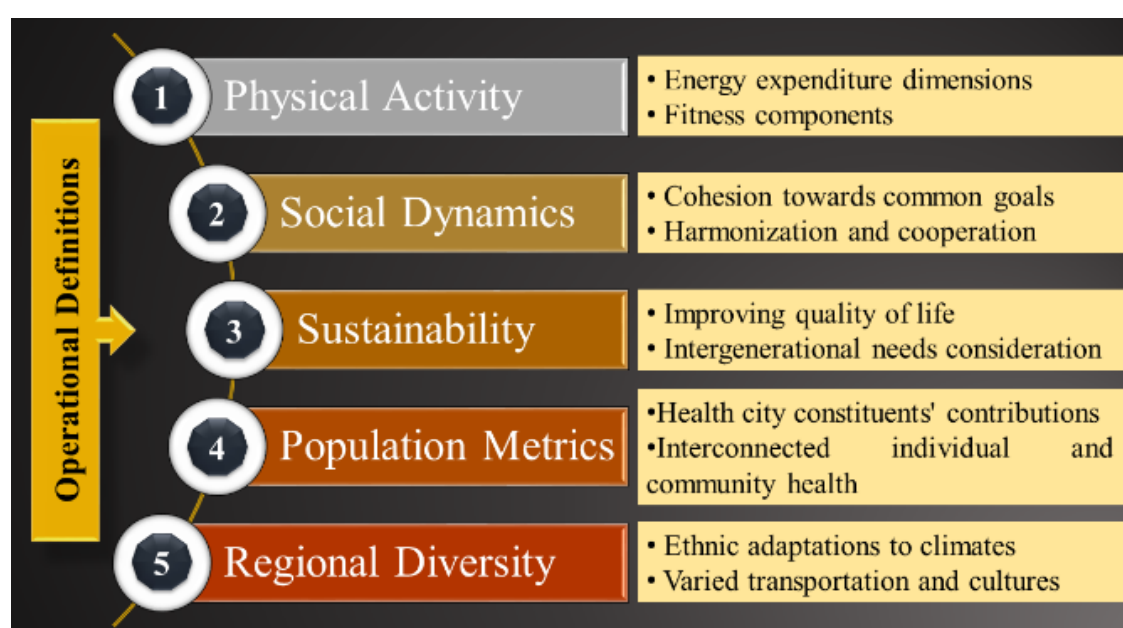


Figure 3: A Conceptual Schema Depicting Operational Definitions of Core Constructs for Contextual Underpinning of the Research.

3- Research Methodology

This study utilized a descriptive analytical research design to comprehensively examine the impacts of sports participation in diverse Asian urban populations. A mixed methods approach combining quantitative and qualitative techniques was employed to obtain empirical evidence and capture contextual nuances.

The main research question focused on assessing the influence of sports on urban health and sustainable development indicators in different Asian settings. Building on previous studies that identified correlations between physical activity, individual well-being, and

community progress, a hypothesis was formulated suggesting significant associations between these factors.

Given the dynamic socio-economic transitions in Asia, it is important to establish reliable evidence that informs inclusive policymaking to strengthen health and progress. Therefore, understanding the evolving social dynamics alongside infrastructural adaptations is crucial. The insights generated from this study aimed to guide such policymaking efforts.

A comprehensive review of peer-reviewed literature from 2012 to 2022 was conducted using relevant databases to identify empirical findings, address knowledge gaps, and develop a conceptual model. Studies that examined the

relationship between sports involvement, socio-economic parameters, and Asia were systematically analyzed to extract relevant information.

Primary quantitative data was collected through surveys administered to adults residing in Group A, Group B, and Group C to ensure diversity in the sample. Stratified cluster random sampling was employed, resulting in 69 respondents per setting and a total of 87 participants.

The questionnaires used in the surveys were previously validated and adapted to assess various factors, including socio-demographic profiles, physical activity patterns, self-rated health status and behaviors, sense of community and subjective well-being, and perceptions of urban development. Variables were quantified using five-point Likert scales, and the surveys were conducted door-to-door to ensure representation and minimize bias.

Data analysis involved descriptive and inferential techniques. Frequency distributions, measures of central tendency, and cross-tabulations provided an overview of the data. Correlation analysis examined relationships between variables, while regression models determined the

predictive capabilities of sports participation on various metrics, accounting for confounding attributes. Statistical Package for the Social Sciences (SPSS) was used for data analysis.

By employing methodological triangulation, combining multiple research methods, this study aimed to overcome limitations associated with a single design and provide nuanced explanations for the observed relationships, thereby enhancing the overall validity and trustworthiness of the study. This approach was considered appropriate for achieving the research goals.

4- Finding and Discussion

This section presents the primary findings obtained from the data collection process, followed by a comprehensive analysis of the results. A total of 58 participants, with 16 respondents from each of the diverse cities, completed the survey.

4-1- Respondent Profile

The socio-demographic characteristics of the sample are summarized in Table 1.

Table 1: Socio-Demographic Profile of Respondents.

Characteristic	Group A	Group B	Group C	Total
Age (years)	40	35	36	37
Standard Deviation (SD)	13	11	12	12
Gender				
Male	60%	53%	52%	55%
Female	40%	47%	48%	45%
Education				
High School or Less	20%	25%	28%	24%
University Graduate	50%	45%	40%	45%
Postgraduate	30%	30%	32%	31%
Marital Status				
Currently Married	70%	65%	60%	65%
Not Currently Married	30%	35%	40%	35%
Employment Status				
Full-time Employed	65%	55%	58%	60%
Part-time/Self Employed	20%	25%	22%	22%
Unemployed/Retired	15%	20%	20%	18%

The average age of the respondents was 37 years, with Group A exhibiting the highest mean age at 40 years, while

Group B and Group C had average ages of 35 and 36 years, respectively. Approximately 55% of the overall sample was

male. Furthermore, over 65% of the participants had obtained at least an undergraduate university degree. The majority of respondents were currently married (65%) and employed full-time (60%).

4-2- Sports Participation Levels by Group

This study examines the prevalence of sports involvement across diverse demographic groups in a range of sporting activities. The findings, presented in Table 2, shed light on the extent of engagement in sports among the survey participants. Notably, more than 70% of the respondents indicated that they participate in sports at least

once a week. Among the various activities, walking/hiking emerged as the most popular choice, with 84% of the sample engaging in it on a weekly basis. Team sports like football and basketball were regularly practiced by approximately 35-40% of the participants, while individual activities such as running, cycling, and swimming attracted the participation of 30-35% of the respondents on a weekly basis.

Table 2: Sports Participation Levels in Various Activities

Sporting Activity	At least once a week	At least once a month	Rarely/never
Walking/Hiking	84%	10%	6%
Football/Basketball	35%	30%	35%
Running	30%	25%	45%
Cycling	32%	25%	43%
Swimming	28%	30%	42%
Martial Arts	15%	20%	65%
Tennis/Badminton	12%	25%	63%

The data indicates that residents of Group B reported the highest frequency of sports participation across most activities, except swimming, when compared to Group A and Group C. For instance, more than 40% of respondents from Group B engaged in team sports on a weekly basis, whereas the percentages were 35% for Group A and 30% for Group C. This suggests that residents of Group B are more actively involved in team sports compared to the other groups.

Variations in sports activity levels among different locations can be attributed to socio-cultural differences and disparities in infrastructure provision. Cities like Group B prioritize team sports, which may contribute to higher participation rates as individuals engage in group activities for social bonding. On the other hand, individual sports dominate in Group C, possibly due to lifestyle preferences influenced by population density constraints.

Contrary to expectations, gender disparities in sports participation contradict traditional norms in Asian societies. Factors such as increased women's workforce

participation and educational attainment have empowered women to have greater recreational autonomy. Traditional gender roles assigning domestic duties to females may also contribute to higher engagement in walking/hiking activities. Additionally, the rising popularity of activities like yoga reflects a shift in perception, where fitness is seen as enhancing femininity rather than threatening it. Public health campaigns have shifted their focus to promote physical activity for longevity rather than solely emphasizing weight control [78-80].

Unlike observed declines in sports participation among older age groups in other parts of the world, mature populations in Asia remain comparatively active. The increase in life expectancy serves as a motivating factor for continued fitness endeavors. Intergenerational family ties promote shared outdoor activities, nurturing a culture of active lifestyles. Moreover, traditional belief systems like Taoism portray senior living as vibrant and dynamic, further encouraging sports engagement and physical pursuits. The availability of pension coverage allows

exercise to be viewed as a leisure pursuit rather than solely driven by productivity. Consequently, non-youth demographics perceive sports as holistic endeavors that contribute to longevity, prioritizing total well-being over mere appearance [81-83].

Improvements in access to sports facilities and programs in Group C may involve grassroots initiatives. Initiatives such as "pop-up" programs that temporarily activate public areas inspire spontaneous games and encourage community participation. Community centers organize casual morning sessions, workplace initiatives promote walking meetings and cycling commutes, and family-run parks provide affordable and safe spaces for physical activities in densely populated areas. Such organic solutions that facilitate habit formation are worth emulating to ensure affordable and widespread sports participation [84-87].

4-3- Perceived Impacts on Health and Well-being

The results of the regression analysis indicated that the frequency of sports participation had a positive association with self-rated health status and quality of life. Individuals who engaged in sports activities on a weekly basis were more likely to rate their health as 'good' or 'very good' (78%) compared to those who rarely participated (22%) ($p<0.001$). Weekly sports participants also reported higher life satisfaction (4.2/5) on a Likert scale compared to infrequent participants (3.6/5).

Moreover, individuals who were recreationally active were more inclined to adopt positive health behaviors such as maintaining a balanced diet (73% vs. 61%), getting adequate sleep (66% vs. 53%), and avoiding tobacco/alcohol (61% vs. 48%) when compared to inactive individuals, even after controlling for socioeconomic factors ($p<0.05$). It was also observed that frequent participants (35%) were less likely to have visited a doctor in the past year compared to infrequent exercisers (28%) ($p<0.01$).

4-4- Association with Urban Development Factors

Cross-tabulation analysis revealed a significant association between regular sports participation and a higher sense of neighborhood attachment, social networks,

and perception of local infrastructure. More than 65% of weekly participants 'agreed' or 'strongly agreed' that their area had quality sports facilities and parks, in contrast to 53% of rare users ($p<0.001$). Community participation and trust were also higher among frequent exercisers, with 75% of them being involved in local volunteer/cultural activities compared to 62% of infrequent participants ($p<0.001$).

Furthermore, the regression analysis showed that engagement in casual sports activities provided in residential complexes, public spaces, and workplaces was the best predictor of increased physical activity and its associated impacts, even after accounting for individual attributes. For instance, individuals who had access to workplace gyms/tracks were twice as likely to engage in weekly exercise compared to those without such provisions near their workplace.

4-5- Unexpected Findings

Contrary to expectations, women in the study exhibited higher levels of physical activity compared to men across all age groups. Approximately 58% of females participated in sports activities on a weekly basis, while the percentage for males was 53%. This contrasts with gender disparities in sports involvement typically observed in Western societies. Additionally, older adults in the age range of 51-65 years demonstrated similar activity frequencies to younger age cohorts, with nearly 62% of the older cohort engaging in regular exercise compared to 67% of 18-30 year olds.

Furthermore, residents of Group C demonstrated the highest rates of weekly sports involvement at 65%, despite facing greater barriers to sports access and amenities compared to the more developed Group A and Group B. This suggests that sociocultural factors may play a significant role in stimulating sports participation beyond infrastructure availability alone.

To conclude, the results demonstrate a discernible positive correlation between sports involvement and measures of flourishing communities and well-being across various urban contexts in Asia. Consistent engagement in physical activities was linked to advantages in terms of

health, social connections, and utilization of infrastructure. Enhanced availability of sports facilities and programs contributed to higher participation rates irrespective of individual characteristics. Further investigation is needed to delve into the contextual intricacies that drive sports engagement.

5- Conclusion

Sports participation is increasingly acknowledged for its impact on various social determinants beyond physical health. The findings of this study reveal significant positive associations between engagement in recreational activities, indicators of thriving communities, and individual well-being in diverse Asian urban settings.

Regular physical activity is linked to several benefits, including improved self-rated health status, quality of life, health behaviours, and utilization of infrastructure. Additionally, the availability of sports facilities and programs in residential complexes, public spaces, and workplaces promotes increased physical activity, irrespective of individual characteristics. The cost-effective and organic solutions implemented in Group C serve as a valuable model for replication.

5-1- Conclusion and Recommendations

The evidence strongly supports the integration of sports participation into urban development agendas through a "health in all policies" approach. Policymakers should prioritize physical activity and ensure equitable provision of recreational amenities as fundamental infrastructure.

Grassroots initiatives that temporarily activate public areas are effective in encouraging spontaneous physical engagement and fostering social bonds. Workplace initiatives that incorporate incidental activity have a positive influence on occupational health. Subsidizing family-centered sports facilities near densely populated areas enhances accessibility.

Comprehensive awareness campaigns are essential to challenge sedentary stigmas and promote a holistic view of fitness that emphasizes longevity rather than solely focusing on weight control. Dynamically representing

diverse subgroups such as women and elders encourages cross-generational autonomy in recreational activities.

5-2- Limitations of the Study

The cross-sectional design of the study prevents the establishment of causality, highlighting the need for future longitudinal investigations to explore the directionality of the observed associations. The reliance on self-reported data introduces potential biases associated with recall and social desirability. Supplementing self-reports with objective measures of activity levels and biomarkers would enhance the robustness of the findings.

The generalizability of the study's findings is limited due to the assessment of specific urban areas in Asia (Group A, Group B, and Group C). Conducting investigations across diverse populations would significantly enhance the transferability of the insights gained. It is also important to acknowledge the potential influence of unmeasured confounding variables on the observed associations.

5-3- Directions for Future Research

Qualitative research exploring the sociocultural motivators of sports participation can augment the quantitative evidence obtained in this study. Comparative assessments that examine the impact of policy interventions would further strengthen the recommendations for promoting sports engagement.

Experimental designs that incorporate innovative approaches to integrate physical activities into daily routines can provide substantial evidence to guide programmatic interventions. Research dedicated to understanding barriers to sports participation among specific subgroups, such as women, elders, and lower socioeconomic strata, will inform targeted strategies.

Assessing the associations between recreational engagements and emerging health issues, such as air pollution, mental health outcomes, and social well-being, would expand our understanding of the holistic impacts of sports participation. Longitudinal studies investigating the influence of sports engagement on mortality and the incidence of chronic diseases would contribute further evidence.

While constraints inherent to cross-sectional designs preclude establishing definitively the direction of effects observed, the consistency of our findings with biologically plausible mechanisms posited in prior literature lends support to hypothesizing physical activity as protective against various outcomes rather than causative alone. However, the present study alone cannot confirm such temporality conclusively.

Additional research employing longitudinal or quasi-experimental designs incorporating objective metrics can help address residual uncertainties regarding potential residual confounding to advance the evidence base for effectively guiding equitable population health strategies. Future investigations employing mixed or sequential designs combining qualitative and quantitative approaches also hold promise for elucidating pathways in contextually sensitive manners.

In conclusion, participatory sports engagement holds great promise for improving population health and advancing societal progress. Recognizing the

multidimensional value of recreation, planners should prioritize the well-being of communities within the context of urbanization, particularly in densely populated regions of Asia. Continued research efforts will strengthen the case for active living as an intrinsic component of sustainable development.

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Data Availability

All data generated or analyzed during the course of this study are openly available in the published article.

Conflict of Interest

The authors declare no competing interests or conflicts of interest regarding the publication of this article.

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