



Testing the relationship between service quality perceptions and players' satisfaction in the context of 3x3 basketball tournaments in Greece

Relación entre la calidad del servicio y la satisfacción de los jugadores en los torneos de baloncesto 3x3 en Grecia

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Abstract

Introduction: 3x3 basketball is a relatively new form of basketball aiming to promote mass participation and make the sport more attractive at a community level.

Objective: This paper aimed to apply a service quality model in the context of 3x3 basketball and test the degree to which players' satisfaction can be predicted by the five dimensions of the model.

Methodology: This study used a quantitative, correlational design to explore associations between service quality dimensions and participant satisfaction in 3x3 basketball tournaments in Greece, and to evaluate the predictive contribution of each dimension to overall satisfaction. The sample of the study consisted of 305 players (65 females, 22%, and 238 males, 78%) who participated in 3x3 basketball tournaments in the region of Central Macedonia, Greece.

Results: The confirmatory factor analysis confirmed the factorial validity of the model, with its five dimensions. All the five dimensions significantly contributed to the prediction of players' satisfaction, with the Reliability one being the most important one.

Discussion: It is concluded that 3x3 basketball, with its modern image, can be an effective vehicle for Basketball Associations to make the sport more attractive to young people and local communities.

Conclusions: These findings highlight the importance of service quality management in 3x3 basketball tournaments to enhance player satisfaction and support the growth of the sport.

Keywords

Players' satisfaction; service quality; sport event management; 3x3 basketball.

Resumen

Introducción: El baloncesto 3x3 constituye una modalidad relativamente reciente que tiene como objetivo fomentar la participación masiva y aumentar la atractividad del deporte a nivel comunitario.

Objetivo: El presente estudio tuvo como objetivo aplicar un modelo de calidad del servicio en el contexto del baloncesto 3x3 y evaluar en qué medida la satisfacción de los jugadores puede predicirse a partir de las cinco dimensiones del modelo.

Metodología: El estudio utilizó un diseño cuantitativo correlacional para explorar las asociaciones entre las dimensiones de la calidad del servicio y la satisfacción de los participantes en torneos de baloncesto 3x3 en Grecia, así como para evaluar la contribución predictiva de cada dimensión a la satisfacción general. La muestra del estudio estuvo compuesta por 305 jugadores (65 mujeres, 22%, y 238 hombres, 78%) que participaron en torneos de baloncesto 3x3 en la región de Macedonia Central, Grecia.

Resultados: El análisis factorial confirmatorio corroboró la validez factorial del modelo, compuesto por sus cinco dimensiones. Todas las dimensiones contribuyeron de manera significativa a la predicción de la satisfacción de los jugadores, siendo la dimensión de Fiabilidad la más relevante.

Discusión: Se concluye que el baloncesto 3x3, con su imagen moderna, puede constituir un vehículo eficaz para que las asociaciones de baloncesto hagan el deporte más atractivo para los jóvenes y las comunidades locales.

Conclusiones: Estos resultados destacan la importancia de la gestión de la calidad del servicio en los torneos de baloncesto 3x3 para mejorar la satisfacción de los jugadores y favorecer el crecimiento del deporte.

Palabras clave

Baloncesto 3x3; calidad del servicio; gestión de eventos deportivos; satisfacción de los jugadores.

Introduction

The existing literature in basketball research has predominantly focused on agility in 5-on-5 game contexts (Corredor-Serrano et al., 2023) and on tactical decision-making processes (Rodriguez et al., 2024). However, in recent years, the rapid rise of 3x3 basketball has transformed the landscape of global sports participation, merging the recreational essence of street basketball with the formal structure of professional competition. Recognized by FIBA and introduced as an Olympic discipline in 2020, 3x3 basketball has gained remarkable popularity across age groups and regions due to its accessibility, fast pace, and entertainment value (Yazici, 2023). Its rapid institutionalization, combined with its informal origins, distinguishes 3x3 basketball from traditional team sports and creates a hybrid participation model that warrants focused academic attention. Unlike traditional 5x5 basketball, 3x3 is played on a half court with three players per team, resulting in a condensed, high-intensity format that emphasizes agility, creativity, and decision-making under time pressure. This environment provides a unique experience for participants, balancing competitive engagement with recreational enjoyment within event settings that are often temporary, urban, and highly interactive. From a marketing perspective this “new product” is made by all the three dimensions of a typical service product: core, tangible and augmented, but with different attributes. While the core product relates to the satisfaction of the intrinsic motives to play 3x3, such as competence, autonomy, and relatedness, as proposed by the Self-Determination Theory (Deci & Ryan, 2000), the tangible and augmented products can be built considering the existing service quality models (e.g., Biscaia et al., 2023) which require contextual adaptation to reflect the specific organizational, environmental, and social characteristics of 3x3 basketball events.

Defining and building event service quality is a key task for sport development officers, since satisfaction with participation in sports events is the outcome perceived quality (Alexandris et al., 2004; Brady & Robertson, 2001, Polyakova et al., 2024). High satisfaction levels not only enhance enjoyment but also increase the likelihood of continued engagement and word-of-mouth promotion (Alexandris et al., 2004; Cronin et al., 2000; Howat et al., 1996). Satisfaction has been also consistently shown to be linked with increased loyalty to activities and / or sports, psychological commitment, and attachment (Ntovoli et al., 2024; Xiao et al., 2020). It is therefore important to identify the factors that influence participants' satisfaction to achieve a loyal participant base. This issue is particularly critical in 3x3 basketball, where participation is largely voluntary and event-based rather than club-based, making service quality a decisive factor for retention. In the context of 3x3 tournaments, where events are often organized outdoors and involve direct player-spectator interaction, these service dimensions play a crucial role in shaping players' experiences.

There is some research conducted in similar settings such as 5x5 basketball which showed that several internal and external to an individual factors, such as opportunities for social interaction, the tangible aspect of the event, but also perception of competence, and enjoyment, influence participants' satisfaction (Arias-Estero et al., 2013; Sheldon et al., 2013; Slingerland et al., 2014). However, empirical research specifically examining the determinants of satisfaction within the context of 3x3 basketball remains limited. Existing literature primarily addresses the technical, tactical, and performance aspects of 3x3 play, with minimal attention given to the actual service product influencing players' satisfaction and continued engagement. This gap is particularly evident in national contexts where 3x3 basketball is still developing structurally, such as Greece, where tournaments are frequently organized by municipalities, local clubs, or federations under varying organizational standards. Consequently, there is a need for empirical investigation into how quality event related factors shape the satisfaction of 3x3 participants (Tsitskari et al. 2009). Focusing on the Greek context is especially relevant due to the country's strong basketball culture, the increasing number of 3x3 tournaments nationwide, and the strategic role of such events in promoting grassroots sport participation and community engagement. Understanding these relationships would not only contribute to the theoretical development of sport participation and satisfaction models but also provide practical insights for coaches, organizers, federations, and sport policy-makers aiming to enhance the appeal and sustainability of 3x3 basketball in local communities. Therefore, the purpose of this paper was to examine which service quality factors influence player satisfaction in 3x3 basketball tournaments in Greece.

The Unique Characteristics of 3x3 basketball

One of the most notable distinctions between 3x3 and 5on5 basketball concerns the scoring system and temporal constraints. While traditional basketball awards two points for field goals within the 6.75 m arc and three points for shots beyond it, in 3x3 basketball, successful attempts from inside and outside the arc are valued at one and two points, respectively. This rule modification increases the strategic importance of long-range shooting and influences shot selection, accuracy, and offensive decision-making. Additionally, the shortened 12-second shot clock compared to 24 seconds in 5-on-5 requires players to execute rapid offensive actions, make instant tactical choices, and maintain high levels of focus and intensity throughout the game. Consequently, the tempo of 3x3 basketball is significantly faster, emphasizing transition play, improvisation, and continuous engagement, which can enhance both athlete satisfaction and spectator appeal (Conte et al., 2023).

Yazici (2023) highlighted that participants in street basketball, a precursor of 3x3, perceive recreational basketball as both a physical outlet and a means of social expression. Age, occupation, level of involvement, and available leisure time were found to influence how players perceive their participation and the benefits they derive from it, such as the satisfaction they feel. Similarly, Heo and Lee (2007) demonstrated that consistent engagement in basketball was associated with better adaptation strategies among students, who reported that their participation strengthened social bonds and improved their sense of belonging.

Research indicates that participation in recreational and competitive sports activities, such as 3x3 basketball, contributes significantly to physical health, psychological well-being, and social connectedness (Ntovoli et al., 2025; Sjøgaard et al., 2016; Theodorou et al., 2024; Tsitskari et al., 2009). Beyond these benefits, 3x3 basketball provides a flexible and adaptable environment that can cater to diverse participant groups, including youth, amateur adults, and even professional athletes, making it a particularly versatile form of sport for community programs. Alongside its recreational benefits, 3x3 basketball represents a platform for community engagement and social inclusion. Its open and accessible format allows participation from individuals with varying skill levels, promoting equality and reducing barriers to entry (Figueira et al., 2022). Furthermore, the urban-friendly and portable nature of 3x3 events allows tournaments to be hosted in a variety of locations, from schoolyards and community centers to public squares, thereby increasing visibility, accessibility, and opportunities for social interaction. Moreover, the public and festival-like nature of 3x3 events enhances their entertainment appeal, and it is expected to contribute to the psychological satisfaction of both players and spectators. This combination of competitive excitement, social interaction, and informal structure creates a unique experiential environment, where participants not only develop technical and tactical skills, but also experience emotional and social rewards.

Importantly, the hybrid nature of 3x3 basketball blending competitive rigor with recreational informality makes it particularly relevant for investigating service quality and participant satisfaction. Unlike traditional sports that are heavily club-based or institutionalized, 3x3 events are often short-term, highly social, and event-driven, which allows organizers to directly influence player experience through event design, service provision, and interaction quality. This distinct context justifies the need for a focused study on service quality in 3x3 basketball, especially in the Greek setting where the sport is rapidly growing but still emerging as a structured competitive activity.

Service Quality Models in Sport Events

Event quality has been conceptualized as the consumer's overall perception of a deliberately designed experience that is temporary in nature and time-bound and time-bound, where every aspect of the event contributes to the perceived value of the experience (Shonk et al., 2017). This notion is rooted in the broader service quality literature, where Parasuraman et al., (1988) defined service quality as the evaluation of the overall excellence or superiority of a service offering. Initial theoretical developments in the field were accompanied by efforts to operationalize service quality. Notably, the SERVQUAL model (Parasuraman et al., 1988) identified five core dimensions—tangibles, reliability, responsiveness, assurance, and empathy—while subsequent refinement by Brady and Cronin (2001) suggested a more streamlined structure consisting of interaction quality, outcome quality, and physical environment quality. These models have provided a foundation for assessing service performance, both from the perspective of organizational delivery and consumer experience, including sport and event contexts. More



recent contributions continue to refine service-quality assessment in sport and event contexts (e.g., Biscaia et al., 2023; Polyakova et al., 2024).

Empirical evidence strongly supports the impact of event quality on consumer outcomes, highlighting its role in driving satisfaction, loyalty, and positive behavioral intentions. Event quality has been shown to enhance service value, improve destination image, and promote positive behavioural intentions (Byon et al., 2013; Moon et al., 2011; Polyakova et al., 2024). Contemporary research also supports these associations, highlighting event quality as a driver of loyalty and experiential value in sport events (Hartanto & Megawati, 2025). Research applications span diverse sport and leisure contexts and events, including basketball (Kim et al., 2013), recreational fishing (Pierskalla et al., 2013), fitness (Alexandris et al., 2022), football fans (Theodorakis & Alexandris, 2008), taekwondo competitions (Jae Ko et al., 2011) etc. Nonetheless, most prior studies have predominantly approached event quality from the perspective of spectators focusing on the evaluation of pre-designed, observed experiences rather than active participation (Biscaia et al., 2024; Jeong et al., 2020; Jae Ko et al., 2011; Yoshida & James, 2011). More recent investigations have begun shifting toward participatory sport events, assessing service quality as perceived by active participants in activities such as golf (Hutchinson et al., 2009; Lee et al., 2013), running (Alexandris et al., 2017; Theodorakis et al., 2019), and sambo (Matić et al., 2020; Milovanović et al., 2021). Recent participatory event studies also highlight participant-centered quality attributes such as safety, flow, and well-being (e.g., Inoue et al., 2022; Theodorou et al., 2024). These findings emphasize that active participant perceptions may differ from spectator evaluations and highlight the need for sport-specific quality measures that reflect participant experience.

Previous research has conceptualized event quality as a multidimensional construct. Ko et al. (2011) introduced the Scale of Event Quality in Spectator Sports (SEQSS), encompassing five key dimensions: game quality, augmented services, interaction quality, outcome quality, and environmental quality. In a similar vein, Jin et al. (2013) proposed a four-dimensional framework, comprising game, interaction, outcome, and physical environment quality. More recently, Ko et al. (2023) advanced a simplified measurement approach within the spectator sport context by employing single-item indicators to capture perceived quality. This approach reduced complexity while maintaining validity, offering a practical tool for applied event quality assessment. Their work replaced the eleven subscales of the original SEQSS (Ko et al., 2011) with concise single-item statements, thereby offering a more parsimonious yet comprehensive tool for assessing event quality. Further validation studies confirm the applicability of simplified, event-specific quality scales in various sport contexts, emphasizing their potential relevance for participatory and emerging sport formats such as 3x3 basketball (e.g., Yoshida & James, 2011; Kim et al., 2013).

Determinants of Participant Satisfaction

Service quality has been widely recognized as a crucial determinant of customer satisfaction and a key contributor to an organization's profitability across consumer markets (Parasuraman et al., 1988). High levels of perceived service quality not only enhance customers' immediate evaluations of a service encounter but also shape long-term attitudes toward the service provider, influencing brand image and trust. Satisfied customers are more likely to repurchase or continue using a service (Bernhardt et al., 2000; Fornell & Wernerfelt, 1987; Crilley et al., 1999; Murray & Howat, 2002; Polyakova et al., 2024), as satisfaction strengthens emotional attachment and reduces customers' sensitivity to price and competitive alternatives. Over the past two decades, scholarly attention to service quality has intensified, largely driven by empirical evidence suggesting that enhanced service quality can improve organizational performance and competitiveness (Rosen et al., 2003; Rust et al., 2000). This growing interest reflects a broader shift toward customer-centric management approaches, where service quality is viewed as a strategic resource rather than merely an operational outcome. In the past, an expanding body of research has sought to transfer and adapt service quality frameworks to the context of sport organizations (e.g., Theodorakis et al., 2011). This growing body of literature highlights the applicability of service quality concepts and measurement tools to sport service settings, emphasizing their relevance for understanding customer satisfaction, loyalty, and overall organizational effectiveness. Given the experiential and emotional nature of sport consumption, service quality in sport contexts often extends beyond functional delivery to include atmospherics, social interaction, and symbolic value associated with the sport experience.



A crucial factor in cultivating perceptions of high service quality is ensuring that the perceived service performance aligns with or surpasses consumers' expectations. Expectations are shaped by prior experiences, word-of-mouth communication, marketing messages, and situational factors, making them dynamic rather than static benchmarks. This alignment can be verified through an assessment of consumers' perceptions of service delivery performance, comparing the desired and the perceived levels. The gap between these two levels can reveal both opportunities and constraints for (a) marketing planning and (b) implementing improvements in service quality (Alexandris et al., 2024; Polyakova et al., 2024; Tsitskari et al., 2009). A positive gap, where perceived performance exceeds expectations, can lead to delight and heightened satisfaction, whereas a negative gap may result in dissatisfaction and weakened behavioural intentions. By effectively managing service-performance cues, sport managers can influence spectators' future behaviours, such as loyalty, positive word-of-mouth, and repurchase intentions. These cues include both tangible elements (e.g., facility quality, cleanliness, and accessibility) and intangible elements (e.g., staff responsiveness, empathy, and emotional engagement). This requires assessing consumers' perceptions of service delivery by comparing desired and perceived performance levels, as any discrepancy highlights both opportunities and constraints for marketing strategies and service quality improvements. Recent sport service research emphasizes expectation-performance alignment as a primary predictor of experiential satisfaction (e.g., Calabuig-Moreno et al., 2021), underscoring the importance of continuous monitoring of customer expectations and perceptions to sustain competitive advantage and enhance the overall sport consumption experience.

Specific Features of 3x3 Basketball

As previously noted, 3x3 basketball tournaments is a new form of basketball aiming to make the sport more attractive to bigger audiences and be used a strategy for further basketball development in communities. Designed as a fast-paced, urban-oriented, and spectator-friendly format, 3x3 basketball emphasizes accessibility, inclusiveness, and entertainment, distinguishing it from traditional five-on-five basketball. This form of basketball combines both the competitive and the recreational elements, making it more attractive especially for players. The informal atmosphere, shorter game duration, and close interaction among players, organizers, and spectators contribute to a unique service experience that extends beyond athletic performance alone. There is no research so far to apply any of the existing sport service quality models in the context of 3x3 tournaments. As a result, the applicability and adequacy of established service quality dimensions within this emerging sport setting remain largely unexplored. Recent studies highlight the rapid professionalization and experiential characteristics of 3x3 basketball (e.g., Yuzkovets & Krasov, 2024). This evolution has led to increasing expectations among participants regarding organizational quality, event management, and overall service delivery. Therefore, the aim of this study was to conceptualize and measure service quality in this context and test the influence of the service quality dimensions on players' satisfaction. By doing so, the study seeks to contribute to the sport management literature by extending service quality theory to a novel sport format, while also offering practical insights for event organizers and governing bodies aiming to enhance participant experiences and foster sustained engagement in 3x3 basketball.

Study Objectives and Research Questions

Building on established service quality models, particularly SERVQUAL (Parasuraman et al., 1988) and their adaptations in sport event contexts (e.g., Theodorakis et al., 2011; Alexandris et al., 2024), the present study adopts a multidimensional view of service quality. In sport settings, service quality is commonly conceptualized as a set of interrelated dimensions reflecting both tangible and intangible aspects of service delivery. In line with consumer satisfaction theory, perceived service quality is treated as a key antecedent of satisfaction, which reflects players' overall evaluation of their tournament experience. Accordingly, the proposed conceptual framework assumes that players' perceptions of facilities, personnel, responsiveness, reliability, and outcome influence their level of satisfaction with 3x3 basketball tournaments. In light of the literature review and identified gaps, the objectives of this study are as follows. To conceptualize and measure service quality in 3x3 basketball tournaments in Greece. To examine the influence of different service quality dimensions on players' satisfaction. To provide practical insights for coaches, organizers, federations, and sport policymakers to enhance participant experiences and promote grassroots development. Based on these objectives, the following research questions were formulated:



RQ1: Are perceived service quality dimensions, facilities, personnel, responsiveness, reliability, and outcome, positively associated with players' satisfaction in 3x3 basketball tournaments?

RQ2: To what extent do service quality dimensions influence players' satisfaction in 3x3 basketball tournaments?

Method

The present study employed a quantitative, correlational, cross-sectional research design to examine the relationships between service quality dimensions and participant satisfaction in 3x3 basketball tournaments in Greece. The research was exploratory and explanatory in scope, aiming both to investigate patterns of association among variables and to evaluate the predictive contribution of the different service quality dimensions to overall satisfaction.

Participants

The sampling frame of the study consisted of 305 players (65 females, 22%, and 238 males, 78%) who participated in 3x3 basketball tournaments in the region of Central Macedonia, Greece and agreed to participate in the study. The mean age of the participants was 20.78 years ($SD = 8.76$). On average, players reported playing within the same team for 5.45 years ($SD = 4.08$) and having played basketball for 10.60 years ($SD = 6.54$). The data were collected from events of the 3x3GR National Tour, 3x3GR Panhellenic Tournament and 3x3GR E.O.K. These 3x3GR tournaments were conducted with the approval and supervision of the Hellenic Basketball Federation. The inclusion criteria were participants of the 3x3 tournament, whereas the exclusion criteria were basketball athletes who do not participate in 3x3 tournaments. The questionnaires were handed out and completed at the basketball events during the tournaments. An a priori power analysis was performed using G*Power in order to estimate the minimum sample size necessary to detect statistically significant effects with adequate precision. The analysis was conducted for a two-tailed design, assuming a medium effect size (Cohen's $d = .50$), a significance level of $\alpha = .05$, and a desired statistical power of .90, which exceeds the conventional threshold of .80 recommended in behavioral research. The results indicated that a minimum of 172 participants would be required to achieve the predetermined power level. Due to rounding procedures within the sample size calculation, the actual achieved power was marginally higher than the target (.90), further ensuring a robust likelihood of detecting true effects if present.

Procedure

Prior to data collection, ethical approval and authorization to conduct the research were granted by the Institutional Ethics Committee (285/2025). Data were collected during official 3x3 basketball tournaments in the region of Central Macedonia. The participants invited in person and athletes were informed about the purpose of the study and assured of the confidentiality and anonymity of their responses. Participation was voluntary, and informed consent was obtained from all individuals before completing the questionnaire. The instruments were distributed and completed in person at the tournament venues, immediately following the participants' involvement in competition activities to ensure high response accuracy and relevance. The researcher was present to provide clarification when necessary and to ensure standardization of data collection procedures.

Instrument

The five-dimensional scale of sport service quality (Alexandris et al., 2012; Alexandris et al., 2004) adopted to the context of the present study was used to measure sport service quality. This included items (14), which were categorized in 5 dimensions; facilities (e.g., 3x3 basketball courts have specific dimensions), personnel (e.g., My coaches are aware of the different rules), responsiveness (e.g., Problems within 3x3 teams are resolved quickly), reliability (e.g., The organizers are consistent in fulfilling their responsibilities), outcomes (e.g., Participating in 3x3 tournaments helped me improve my psychological well-being). The statements were designed based on a 7-point Likert scale ranging from 1 (= totally disagree) to 7 (= totally agree). Confirmatory factor analysis was used indicating that it is a five-dimensional model with a good fit to the data ($\chi^2(67) = 152.152$, $p < .001$, CFI = .93, GFI = .99, SRMR =

.05, CI90% [.05-.08], RMSEA = .07), respectively. The internal consistency was assessed only for the total scale (Cronbach's $\alpha = .80$).

A 3×3 basketball satisfaction scale (Alexandris et al., 2004; Alexandris et al., 2012), adapted for the context of the present study, was used to assess participants' perceptions. This scale included items (17), which were categorized in 1 dimension; satisfaction from 3x3 (e.g., How satisfied are you with the level of entertainment?). The participants responded on a 7point Likert scale. Confirmatory factor analysis was used indicating that it is unidimensional with a good fit to the data ($\chi^2(95) = 244.434$, $p < .001$, CFI = .90, GFI = .98, SRMR = .06, CI90% [.06-.08], RMSEA = .07) and ($\chi^2(67) = 152.152$, $p < .001$, CFI = .93, GFI = .99, SRMR = .05, CI90% [.05-.08], RMSEA = .07). Cronbach α was also used indicating good reliability $\alpha = .84$. Specifically for facilities we had $\alpha = .50$, for personnel $\alpha = .46$, for responsiveness $\alpha = .65$, for reliability $\alpha = .73$ and for outcomes $\alpha = .82$.

Data analysis

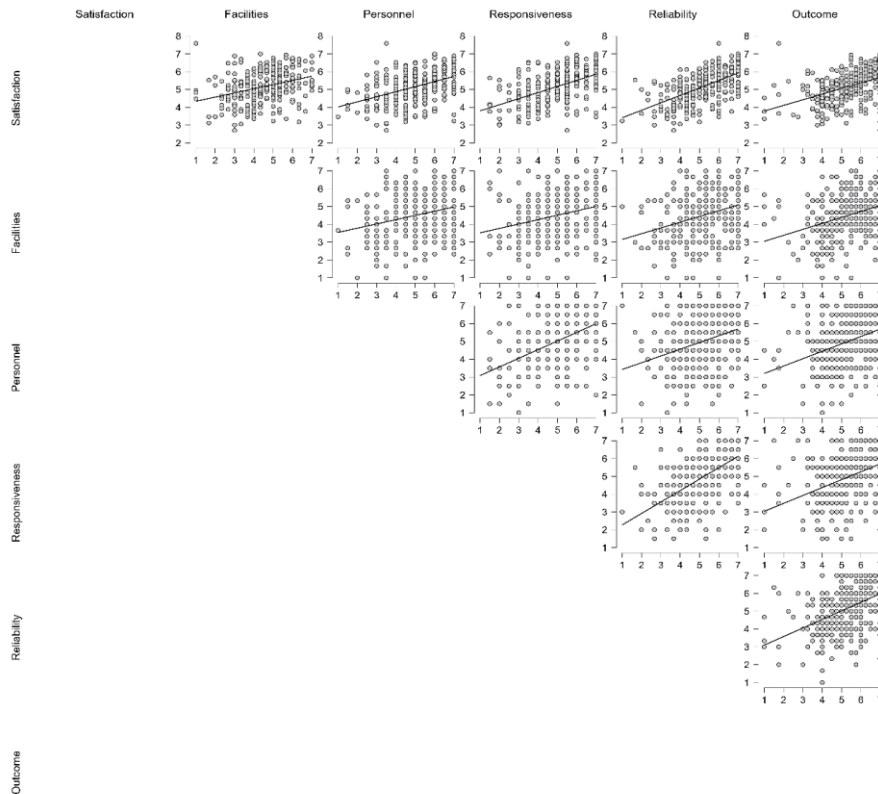
All statistical analyses were conducted to examine the relationships among service quality dimensions, and satisfaction as reported by athletes participating in 3x3 competitions. Prior to data analysis, the dataset was screened for accuracy, completeness, and suitability for parametric statistical analyses. All questionnaires were examined for missing or invalid responses. Cases with substantial missing data were excluded from further analyses, while remaining missing values were minimal and handled using listwise deletion, as recommended for correlational and regression analyses when the proportion of missing data is low. No out-of-range values or data entry errors were detected. The assumptions underlying Pearson's correlation and multiple regression analyses were examined. Normality of the variables was assessed through inspection of skewness and kurtosis values, histograms, and Q-Q plots. All variables demonstrated acceptable levels of normality, with skewness and kurtosis values within recommended thresholds for parametric analyses. Pearson's correlation coefficients (r) were calculated to explore the bivariate associations between satisfaction, facilities, personnel, responsiveness, reliability, and outcomes. This analysis allowed for the identification of significant interrelationships among the variables and provided preliminary evidence regarding the strength and direction of these associations. Following the correlation analysis, a multiple regression model was employed to evaluate the extent to which the service quality dimensions predicted overall satisfaction. The regression model was tested for statistical significance using the F-test, and the proportion of variance explained was assessed through the adjusted coefficient of determination ($AdjR^2$). Standardized regression coefficients (β) were reported to determine the relative contribution of each predictor. Data analysis was conducted using IBM SPSS Statistics software version 29.0.

Results

In order to answer to the first hypothesis (H1) if the perceived service quality dimensions, facilities, personnel, responsiveness, reliability, and outcome, positively associated with players' satisfaction in 3x3 basketball tournaments Pearson Correlation is used. Pearson's correlation analysis revealed significant correlations among the variables under investigation. Initially, the analysis showed that satisfaction was positively associated with facilities ($r = .33$, $p < .001$), personnel ($r = .44$, $p < .001$), responsiveness ($r = .51$, $p < .001$), reliability ($r = .58$, $p < .001$), and outcome ($r = .44$, $p < .001$). This indicates that higher satisfaction is strongly linked to perceptions of service quality, particularly reliability and responsiveness, suggesting that these dimensions play a central role in shaping overall satisfaction. Facilities were further correlated with personnel, responsiveness, reliability, and outcome. These results suggest that perceptions of facilities are moderately linked to evaluations of staff, service delivery, and outcomes. Moreover, personnel showed significant positive correlations with responsiveness ($r = .47$, $p < .001$), reliability ($r = .35$, $p < .001$), and outcome ($r = .38$, $p < .001$). This pattern indicates that positive evaluations of personnel are closely tied to perceptions of responsiveness, reliability, and outcomes, highlighting the central role of staff performance in shaping service quality. Furthermore, responsiveness was strongly correlated with reliability and also positively related to outcome. The strong association between responsiveness and reliability suggests that prompt and attentive service is perceived as dependable, while the positive link with outcomes indicates that responsiveness also contributes to

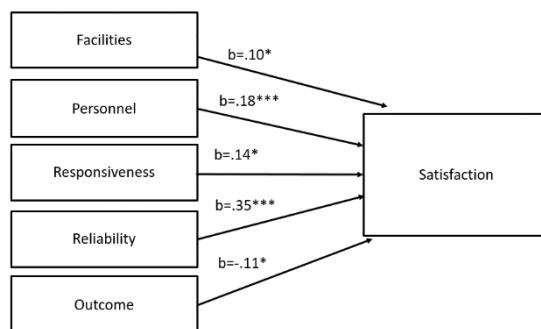
overall effectiveness. Reliability also showed a significant positive association with outcome. This information is displayed in Figure 1.

Figure 1. Scatter plot for satisfaction, facilities, personnel, responsiveness, reliability, and outcome.



In order to answer the second research hypothesis (H2) to what extent do service quality dimensions influence players' satisfaction in 3x3 basketball tournaments we used Linear Regression. The regression analysis demonstrated that service quality dimensions significantly predicted satisfaction, $F(6)=38.29$, $p < .001$. The variance explained is $AdjR^2=42.6\%$. Specifically, facilities, personnel, responsiveness, reliability, and outcomes each showed positive and significant effects, indicating that higher evaluations on these dimensions were associated with greater overall satisfaction. Among these predictors, reliability and responsiveness emerged as the strongest contributors, underscoring their central role in shaping user satisfaction. The information is represented in Figure 2.

Figure 2. Regression paths from service quality dimensions (facilities, personnel, responsiveness, reliability, outcome) to athletes' satisfaction.



Notes. ***sig<.001, **sig<.01, *sig<.05.

Discussion

As previously noted, the structure of 3x3 basketball, with its smaller teams and shorter game duration, promotes frequent player interaction and immediate feedback, creating a different “product” in tournaments than traditional basketball. The current study aimed to apply the concept of sport service quality in the context of the 3x3 basketball tournaments in Greece. The results first provided evidence for the factorial validity of the tested model, with the five dimensions: facilities, personnel, responsiveness, reliability and outcome, showing the universal applicability of this model which was based on the original SERVQUAL and then adjusted to the context of participatory sports. The results of the confirmatory factor analysis and the alpha scores indicated that the model is conceptually clear and the scale used is reliable. Subsequently, this scale can be used as a basis for measuring service quality in 3x3 basketball tournaments.

As previously noted, the goal of the multidimensional service quality models is to measure participants' perceptions in holistic approach. The discussion of results can be further framed within the SERVQUAL theoretical framework, which emphasizes that service quality dimensions influence customer satisfaction through both tangible and intangible cues (Parasuraman et al., 1988; Theodorakis et al., 2011). It is worth discussing each one of the five dimensions in the context of 3x3 basketball tournaments. The Facilities dimension expresses the tangible element of the event, including aspects such as the court, the baskets, the balls, the changing rooms, as well as supportive services which can be included within the augmented dimension of service quality (Kim et al., 2013) such as parking, music, screens and technological equipment. Considering that 3x3 basketball tournaments have a more modern image and personality in comparison with traditional basketball, we can argue that aspects related to the atmospherics of the courts, such as colors, type of music, and associative events can help towards “tangibilizing” the games and developing a unique brand personality. It must be noted that basketball courts can be outdoors as well, not only indoors, which once again can create the image of a street sport, targeting specific lifestyles and age groups.

The Personnel is a typical dimension that has been revealed in sport service quality research in other settings. In the case of 3x3 basketball, personnel relates to event administrators, coaches, referees, commentators, public relation people, and social media marketers who interact with players before, during and after the event. Previous research (Alexandris et al., 2004) has shown that three characteristics of the personnel determine this dimension: knowledge, attitudes and behavior. Knowledge relates to the technical skills of human resources, attitudes relates to their positive or negative approach during the interaction with participants and players and behavior relates to their actions before, during or after the event to guarantee smooth running of the event (Alexandris et al., 2004). While in the earlier studies, these aspects were mainly related to the administration staff and referees, in today's event in which technology plays a vital role in building participants' experience, it is clear that these three aspects (knowledge, behavior and attitudes) extend to technology peoples and those who manage social media. It is known that communication today before and after the event is made in the largest degree through social media interactions.

The Reliability dimension is also one of the dimensions that have been shown in previous research to be present (Theodorakis et al., 2011). Since the current study is about a tournament, it is understandable that the reliability dimension is even more important. An event should run as was promised in relation to the schedule, the level of competition, the services given, the trust in referees and the safety of the players. From an image perspective the reliability of the event organizers plays an important role towards the total perceptions of an event reliability. Since our events were under the auspicious of the Greek Basketball Association this dimension was successfully built by organizers. The unexpected predominance of Reliability over Outcome in predicting player satisfaction may be explained theoretically by the heightened uncertainty associated with a newly introduced sport format in Greece. Unlike established 5x5 tournaments, 3x3 basketball tournaments are still developing norms, standards, and trust with participants. Therefore, players may prioritize consistent scheduling, safe competition environments, and dependable services (Reliability) over purely outcome-related satisfaction, which aligns with the risk-based perspective of service consumption in sports (Parasuraman et al., 1988; Alexandris et al., 2012). However, considering that 3x3 basketball tournaments are still new, they can still be considered as “risky” events that have to further establish trust with players and spectators.

The Responsiveness dimension relates to the personnel's ability to respond to requests, complaints and solve problems that are revealed before, during and after the event. It is a typical dimension in all the service products. Perishability is one of the unique characteristics of the services, meaning that they are produced and consumed at the same time (Alexandris et. al., 2012). Services are therefore riskier than tangible products, since problems have to be solved live or in front of the audience. The ability of the organizers to respond to complaints and solve problems determines in a large degree satisfaction and or dissatisfaction.

Finally, the outcome dimension relates to the satisfaction of the players' expected outcomes. In the setting of 3x3 basketball tournaments, as previously noted, this dimension has a double meaning, as participants / players want to satisfy both competition and recreational needs. They are obviously competitive events, in which players try to win, satisfying achievement needs. However, the events create also social interaction, and participants / players expect also fun and enjoyment. This duality may partially explain why Outcome was less predictive than Reliability in this context: while achievement and enjoyment are important, participants in newly emerging tournaments may perceive that consistent event delivery and organizational trustworthiness are prerequisites for satisfying these goals. This festival orientation creates a different sport product, which is more attractive from a marketing perspective and more suitable for promoting basketball in a community level.

The results of the regression analyses indicated that all the five dimensions contributed to the prediction of players' satisfaction, supporting research in previous settings (e.g., Theodorakis et al., 2011). It is worth noting that the Reliability dimension had the highest prediction score followed by the Personnel.

Research conducted in other participatory settings (e.g. Alexandris et. al., 2012) had shown that the outcome dimensions is the most influential on participants' satisfaction, which was not supported in the current study. This important role of the Reliability dimension relates to the event setting of our research. As previously discussed, events create more risky situations for participants both in terms of the actual scheduling and competition, but also in terms of safety. Once again, since 3x3 basketball tournaments are still new and they are not well established, the image of the organizer plays an important role.

In conclusion this is the first study that applied a service quality model in the context of 3x3 basketball tournaments. The results provided evidence for the applicability of the five-dimensional model, which can be a useful tool for measuring service quality perceptions in such events. All the five dimensions significantly contributed to the prediction of players' satisfaction, with the reliability one being the most important one. The findings also suggest that for emerging sports contexts like 3x3 basketball in Greece, establishing organizational reliability and trust may be a critical first step in enhancing overall player satisfaction, before other dimensions like Outcome become dominant. It becomes clear that 3x3 basketball, with its modern image, can be an effective vehicle for Basketball Associations to make the sport more attractive to young people and local communities.

Based on our findings, tournament organizers, federations, and coaches can enhance player satisfaction in 3x3 basketball tournaments by focusing on reliability, personnel, and facilities. Organizers should ensure consistent scheduling, clear communication of rules, safe competition environments, and well-equipped courts, while also incorporating festival-like atmospherics such as music and screens to enrich the player experience. Federations can support standardized procedures and provide training for referees, staff, and volunteers to maintain consistent service quality. Coaches should maintain proactive communication with players and facilitate social interaction to increase enjoyment and engagement. Additionally, auxiliary services such as changing rooms, refreshments, and technological support (e.g., live scoring or social media updates) should be optimized to create a seamless and attractive event environment. Implementing these measures can strengthen players' perceptions of service quality and contribute to the growth of 3x3 basketball in Greece.

Limitations and Future Research

This study has several limitations that affect the generalizability of its findings. First, the study used a cross-sectional design, which means that causal relationships should be interpreted with caution. A longitudinal design will be more appropriate to report with more confidence the causal relationships among and between the variables. Second, the data were collected from a sample of Greek players, which means that cultural aspects might have affected them. Collecting data from other countries would be useful to explore the appeal of this new form of basketball and how service quality perceptions are



formed. It should also be noted that the internal consistency for the “Facilities” and “Staff” dimensions was below the commonly accepted threshold ($\alpha > .70$), which may limit the reliability of conclusions drawn from these specific dimensions; therefore, these results should be interpreted with caution. Finally, it should be noted that loyalty to sport was not included as a dependent variable in the model. Future research could include loyalty, as well as other outcome variables such as behavioral intentions, repurchase intentions, and word-of-mouth, to provide a more comprehensive understanding of the effects of service quality in 3x3 basketball tournaments.

Conclusions

This study is the first to apply a multidimensional service quality model in the context of 3x3 basketball tournaments. The findings provide substantial evidence for the applicability of the five-dimensional model (facilities, personnel, responsiveness, reliability, and outcome) in measuring participants' perceptions of event quality. The five dimensions significantly contributed to the prediction of players' satisfaction, with reliability emerging as the most influential predictor, followed by personnel. This finding underscores the pivotal role of trust in the organizers and the seamless execution of events, a matter of particular significance in the context of newer and less established tournaments.

The study also demonstrates that 3x3 basketball tournaments create a distinctive sport product, combining competitive and recreational experiences, festival-like atmospherics, and opportunities for social interaction. These features have the potential to enhance the appeal of basketball to young participants and local communities, offering practical implications for sport administrators and event organizers seeking to promote participation and engagement.

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Appendix

The following questions refer to service quality from 3x3 tournament. Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree).

Questions 1.

The 3x3 basketball courts are the same as standard indoor 5x5 basketball courts.	1	2	3	4	5	6	7
The courts used for 3x3 basketball must be set up in a specific location.	1	2	3	4	5	6	7
3x3 basketball courts have special dimensions.	1	2	3	4	5	6	7
I feel familiar with the rules of 3x3 basketball.	1	2	3	4	5	6	7
My coaches are knowledgeable about the different 3x3 basketball rules.	1	2	3	4	5	6	7
Problems faced by 3x3 teams are resolved quickly.	1	2	3	4	5	6	7
3x3 teams are immediately informed of any changes.	1	2	3	4	5	6	7
3x3 games start on time.	1	2	3	4	5	6	7
Accurate information about the daily schedule of 3x3 games is provided.	1	2	3	4	5	6	7
The organizers are consistent in fulfilling their responsibilities.	1	2	3	4	5	6	7
The 3x3 tournament games helped me increase my energy levels.	1	2	3	4	5	6	7
The 3x3 tournament games helped me improve my health.	1	2	3	4	5	6	7
The 3x3 tournament games helped me improve my psychological well-being.	1	2	3	4	5	6	7
The 3x3 tournament games helped me improve my physical fitness.	1	2	3	4	5	6	7

The following questions refer to satisfaction from 3x3 tournament. Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 7 = strongly agree).

Questions 2.

Would you give up 5x5 basketball to focus exclusively on 3x3 basketball?	1	2	3	4	5	6	7
Did you inform your friends and/or family about your participation in the new event?	1	2	3	4	5	6	7
How likely are you to recommend others to get involved in 3x3 basketball?	1	2	3	4	5	6	7
Did the event provide adequate opportunities for networking and social interaction with other participants?	1	2	3	4	5	6	7
Do you remember who the sponsors of the event were?	1	2	3	4	5	6	7
To what extent was safety ensured at the sports venues?	1	2	3	4	5	6	7
How satisfied are you with the level of entertainment?	1	2	3	4	5	6	7
How satisfied are you with your overall experience at the event?	1	2	3	4	5	6	7
How satisfied are you with the communication and information provided by the organizers prior to the event?	1	2	3	4	5	6	7
How satisfied are you with the quality of the facilities and infrastructure provided by the event?	1	2	3	4	5	6	7

How satisfied are you with the registration and documentation process?	1	2	3	4	5	6	7
How satisfied are you with team participation?	1	2	3	4	5	6	7
How satisfied are you with the game schedule?	1	2	3	4	5	6	7
How satisfied are you with the services provided by the 3x3 tournament administration?	1	2	3	4	5	6	7
How satisfied are you with the level of athletes participating in the 3x3 tournament?	1	2	3	4	5	6	7
Do you believe there is potential for the development of 3x3 basketball in Greece?	1	2	3	4	5	6	7