

Original Research

Analyzing Factors Influencing Volunteer Experience in Large-Scale Sporting Events

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Received: 05/11/2023; Accepted: 05/11/2023; Published: 30/06/2024

Abstract: Despite the extensive literature on volunteers at sports events, there remains limited comprehension among researchers regarding volunteer experience. While studies suggest direct and indirect relationships between motivation, satisfaction, commitment, and sense of community concerning volunteer experience, empirical understanding in this area remains inadequate. The primary objective of this research was to empirically examine the relationship between external influence, satisfaction, and the sense of sports event volunteers' experiences. Following the "Athens Marathon, The Authentic," 850 volunteers participated in an online self-administered questionnaire, yielding a response rate of 65%. Hypothesized linear relationships were tested using a two-step structural equation model. The findings reveal both direct (external influence and satisfaction) and indirect (commitment and sense of community) connections leading to volunteer experience. Volunteer satisfaction demonstrates an indirect relationship with material, mediated by the direct relationship with external influence. Similarly, the sense of egoism exhibits an indirect relationship with volunteer satisfaction, mediated by direct external influences. Additionally, the study identifies leisure as the sole determinant of the direct relationship with satisfaction. Overall, the study emphasizes the necessity of comprehensive analyses to account for the interconnected nature of factors influencing volunteer satisfaction.

Keywords: sport event; volunteers; satisfaction; marathon; influence

1. Introduction

This research aims to address a critical gap in understanding the factors that influence volunteer experiences in large-scale sporting events. While volunteerism is integral to the success of such events. The motivation of this study stems from recognizing the significant role volunteers play in the success of large-scale sporting events. Understanding the factors that

impact their experiences can enhance event management strategies, improve volunteer satisfaction, and ultimately contribute to the overall success and legacy of the events. Volunteers play a crucial role in ensuring the success and sustainability of sporting events (Hoye et al., 2020). Event volunteers play a significant role in the workforce of an event as they are entrusted with crucial roles and responsibilities that ultimately determine the success of the event's execution (Hoye et



al., 2020; Parent & Smith-Swan, 2013). Large-scale sporting events represent unique settings where volunteers contribute significantly. By focusing on these events, we can capture diverse experiences, challenges, and motivations of volunteers within a dynamic and high-profile context, offering valuable insights applicable to similar settings globally. By leveraging Generative AI technologies in the introduction, this paper can identify complex patterns and correlations that may not be captured in the academic literature. Volunteers play a crucial role in the success and sustainability of sporting events. For example, the successful execution of large-scale sporting events necessitates the involvement of a substantial number of volunteers, as evidenced by the recruitment of 70,000 volunteers for the 2016 Rio Olympic Games (International Olympic Committee, 2014). Similarly, smaller events at the community level rely on the invaluable contributions of volunteers who often undertake various formal and informal responsibilities throughout the duration of the event (Kerwin et al., 2015).

Empirically, the field lacks comprehensive studies that delve into the multifaceted aspects of volunteer experiences in large-scale sporting events. While anecdotal evidence and limited studies exist, there is a need for rigorous empirical research to provide a deeper understanding of the dynamics, challenges, and opportunities within this context. In light of the significance of this resource, it is imperative for event managers to establish a favorable encounter with their volunteers (Kerwin et al., 2015; Lachance & Parent, 2020). Positive volunteer experiences can play a crucial role in assisting event managers in attaining their desired outcomes, such as organizing and executing successful events, and ensuring the retention of volunteers for future events.

Moreover, these experiences can significantly contribute to the overall success and longevity of an event. Volunteers who have a positive experience during their volunteer activities may exhibit a higher propensity to make greater contributions towards the event or its successful execution. When contrasting the two scenarios, it was observed that individuals who have a negative volunteer experience may exhibit a lack of engagement and subpar performance in their assigned tasks (Lachance & Parent, 2020). Consequently, this may result in sudden resignation or reluctance to participate in future volunteer opportunities. Any of the aforementioned scenarios would likely have adverse effects on the execution of the event and hinder the likelihood of the event's triumph and sustainability. Therefore, it is crucial for event managers to gain a deeper understanding of volunteer experience. Volunteer experience is defined as an individual's comprehensive perception of their participation in a specific volunteer activity within a defined context (Lachance & Parent, 2020, p. 95). Understanding this experience is significant because it can influence the execution of an event, aid in retaining volunteers for subsequent events, and contribute to the overall success of the event.

One of the key aspects of the volunteer experience is its association with four widely recognized variables: motivation, satisfaction, commitment, and sense of community. These variables have been identified as significant antecedents in comprehending the phenomenon of volunteer experience (Kerwin et al., 2015; Lachance & Parent, 2020; MacLean & Hamm, 2007). The significance of these four antecedents (Lachance & Parent, 2020, in press) is underscored by their direct influence on volunteer experiences, whether positive or negative. Although studies have investigated various factors that contribute

to volunteer experience, prior research has not conducted a statistical analysis to measure volunteer experience as a dependent variable. Previous research has asserted the existence of potential connections between motivation, satisfaction, and/or external influence, and volunteer experience. However, these studies have neglected to treat volunteer experience as a dependent variable in their analyses (Lu & Schuett, 2014; Wang & Wu, 2014). The current understanding of the significance of each of the four variables in predicting volunteer experience is based on assumptions due to the absence of statistical measurements and analyses. Therefore, it is imperative to address this matter to facilitate effective decision making by event stakeholders, such as determining strategies to enhance volunteers' positive experiences and identifying optimal resource allocation. One notable deficiency in the discussion of these four antecedents is the absence of a comprehensive and multifaceted analysis, as pointed out by Lachance and Parent (2020). Thus far, the prevailing body of literature has primarily focused on conducting individual investigations of singular antecedents, such as motivation, satisfaction, or sense of community (Bang & Chelladurai, 2009; Kerwin et al., 2015; Pauline, 2011). Alternatively, some studies have intentionally selected two antecedents for examination: motivation and satisfaction (Bang & Ross, 2009; Vetitnev et al., 2018; Wang & Wu, 2014). The issue at hand is of concern because the increasing amount of evidence suggests that the four antecedents mentioned (motivation, commitment, satisfaction, and sense of community) are not mutually exclusive. Volunteers have the ability to experience these antecedents concurrently at different stages throughout their service (Lachance & Parent, in press). Although two exceptions have theoretically examined all four factors influencing volunteer experience (Lachance

& Parent, 2020, in press), they lack empirical evidence to support their claims because of the autoethnographic nature of their research. However, these exceptions offer valuable frontline perspectives and insight. The current understanding of how motivation, satisfaction, commitment, and sense of community collectively contribute to predicting volunteer experience is limited because previous studies have focused on specific factors in isolation (e.g., motivation and satisfaction; Vetitnev et al., 2018) and the absence of a suitable measure to assess the experiential aspect (cf. Lu & Schuett, 2014; Wang & Wu, 2014).

Consequently, researchers and event managers find themselves in a state of indecision, lacking clarity regarding the primary predictor(s) and the extent of the relationships that exist between these four antecedents and volunteer experience. The primary objective of this study was to conduct an empirical examination of the relationship between sports event volunteers' satisfaction, motivation, commitment, and sense of community and their overall experience. The acquisition of knowledge pertaining to these relationships would enhance our conceptual understanding of the phenomenon, enabling us to gain insight into the factors that can potentially impact volunteer satisfaction. Furthermore, it would allow us to determine whether and how these sequences of events unfold, thereby equipping event managers with empirical evidence to inform their decision-making processes and enhance their volunteer retention strategies. The research problem centers on understanding the factors that shape volunteer experiences in large-scale sporting events. This encompasses various dimensions such as motivation, satisfaction, organizational support, and community impact. By addressing this problem, we aim to enhance volunteer management practices and optimize the overall volunteer

experience. The research draws upon theories and concepts from volunteerism, organizational behavior, event management, and community psychology. Key theoretical frameworks include the Volunteer Functions Inventory, Expectancy Theory, Social Exchange Theory, and the Psychological Contract, providing a robust foundation for understanding and addressing volunteer experiences. Through the empirical examination of these four commonly observed factors in conjunction with volunteer experience, it becomes possible to develop models and draw generalizations that are applicable to a broader population. The current state of research on volunteer experiences in large-scale sporting events is characterized by fragmented studies and limited empirical evidence. While some research exists on volunteer motivations and satisfaction, there is a lack of comprehensive frameworks and empirical studies that capture the multifaceted nature of volunteer experiences in this context. The literature review identifies several research gaps, including limited empirical studies on volunteer experiences in large-scale sporting events, inconsistent conceptualizations of volunteer motivations and satisfaction, and a lack of integrated frameworks for understanding volunteer dynamics within this context. Addressing these gaps will contribute to a more holistic understanding of volunteer experiences and inform effective management strategies.

2. Literature review

The field of sports management has generated a substantial body of literature pertaining to volunteers involved in sports events (Wicker, 2017). The synthesis of literature review results highlights several key findings. Firstly, existing research predominantly focuses on volunteer motivations and satisfaction levels, often

overlooking the nuanced factors that influence volunteer experiences in large-scale sporting events. Secondly, while studies acknowledge the importance of organizational support and community engagement, empirical evidence linking these factors to volunteer experiences remains limited. Lastly, there is a notable gap in the development of comprehensive theoretical frameworks that integrate various dimensions of volunteer experiences within the context of large-scale sporting events. Previous scholarly investigations have been undertaken in various sports event contexts, encompassing mega sporting events such as the Olympics and Paralympics (Dickson et al., 2013; Kodama et al., 2013), international-level sports events such as world championships (Cuskelly et al., 2020; Kristiansen et al., 2015), national-level sports events (Doherty, 2009; Lachance & Parent, 2020), and smaller-sized sporting events such as provincial-level and community-level competitions (Kerwin et al., 2015; Rogalsky et al., 2016). To this extent, Strigas (2001) contributed to the development of a new scale for measuring volunteer motivation in sports events. He tried to investigate the primary motives for volunteering and develop a reliable and valid scale to measure volunteer motives. The sample included 477 volunteers who participated in a country's music marathon. Descriptive statistics showed that egoistic motives were the most important reason for volunteering in sports events. Exploratory and confirmatory factor analyses revealed the emergence of a five-factor model to explain the motivation of volunteers in the events.

This research builds upon previous studies by providing a comprehensive analysis of the factors influencing volunteer experiences in large-scale sporting events. While prior research has primarily focused on individual aspects such as motivation or satisfaction, our study aims to integrate

these dimensions within a holistic framework. By synthesizing existing literature and incorporating empirical data, we aim to contribute to a deeper understanding of volunteer dynamics and inform the development of effective volunteer management strategies. Several theoretical frameworks support this research, including the Volunteer Functions Inventory (VFI), Expectancy Theory, Social Exchange Theory, and the Psychological Contract. These theories offer valuable insights into the motivations, expectations, and social dynamics that shape volunteer experiences within large-scale sporting events. By applying these theoretical perspectives, we can elucidate the underlying mechanisms driving volunteer engagement and satisfaction, thus informing theoretical development and practical implications. The five factors included social/leisure, material, egoistic, purposive, and external influences. The social/leisure factor is explained as the individual's need for social interaction and interpersonal relationships, as well as the individual's need to relax and "chill out." The material dimension relates to a monetary value such as the expected utility gain. Egoistic factors refer to an individual's need for self-actualization, self-esteem, and achievement. The purposive factor includes motives related to volunteers' desire to contribute to sports events and/or the community. Finally, the external influence factor expresses motives influenced by others for volunteering. In recent decades, scholarly investigations concerning volunteers of sports events have primarily concentrated on analyzing constructs from an individual's standpoint, such as motivation, commitment, and experiences. In contrast, less emphasis has been placed on exploring the institutional perspective, encompassing aspects such as recruitment, selection, and retention. Furthermore, the multilevel perspective,

which encompasses the influence of club characteristics and volunteerism, as well as community characteristics and volunteerism, has received limited attention. Finally, the policy perspective, involving challenges in policy implementation and the monetary value of volunteer work, has also been relatively understudied (Wicker, 2017). Several constructs have been examined from an individual's perspective. These constructs include motivation, gender (Skirstad & Hanstad, 2013), job design (Neufeind et al., 2013), engagement (Allen & Bartle, 2014), satisfaction (Kim et al., 2019), commitment (Han et al., 2013), social class (Hayton & Blundell, 2020), sense of community (Kerwin et al., 2015), role ambiguity (Rogalsky et al., 2016), volunteer legacy (Doherty, 2009), and future volunteer intentions (Dickson et al., 2015).

Volunteer experience is a significant phenomenon for both practitioners and scholars within these constructs. Previous studies have investigated the relationship between volunteer experiences in sports events and four constructs: motivation, satisfaction, commitment, and sense of community. It is important to note that this research excluded studies that focused on volunteers' past experiences and roles in different sports events (Bang et al., 2019). The literature on this topic includes studies by Downward and Ralston (2005, 2006), Downward et al. (2005), MacLean and Hamm (2007), Lachance and Parent (2020, in press), Kerwin et al. (2015), and Ralston et al. (2003). Comprehension of the volunteer experience necessitates an understanding of these four antecedents, as previous studies have posited both direct and indirect associations (Kerwin et al., 2015; MacLean & Hamm, 2007; Lachance & Parent, 2020, in press). As an illustration, it is proposed that satisfaction, which serves as a precursor rather than a consequence of the volunteer

experience, has a direct influence on the volunteer experience both positively (e.g., effective job performance, varied roles; Lachance & Parent, *in press*) and negatively (e.g., subpar job performance; Lachance & Parent, 2020) ways. A study conducted by Lachance and Parent (2020) revealed that commitment has an indirect influence on volunteer experience, which is mediated by the interplay between a sense of community and motivation. Motivation is a topic that has garnered significant scholarly interest in the literature on sports event volunteers (Kim & Cuskelly, 2017; Wicker, 2017), and is theorized to exert both direct and indirect (e.g., Lachance & Parent, 2020) effects on volunteer experience. The impact of sense of community on volunteer experience can also be argued, with some studies suggesting an indirect influence (e.g., Lachance & Parent, 2020), while others contend that sense of community is an inherent aspect of volunteer experience (Kerwin *et al.*, 2015, p. 78).

Although recent studies have indicated both direct and indirect associations, it is important to note that these findings lack appropriate statistical measures and analyses when considering the volunteer experience as a dependent variable (Lu & Schuett, 2014; Rogalsky *et al.*, 2016; Wang & Wu, 2014). For example, researchers have assessed volunteer experience by considering factors such as the duration of involvement and the frequency of attendance at meetings (Lu & Schuett, 2014). Another approach was to examine the volunteers' prior experiences with similar events (Bang *et al.*, 2019). The deficiency in the existing measures of volunteer experience lies in the current absence of attention to and utilization of experience-based factors.

It is recommended that experience-based measures incorporate items pertaining to an individual's subjective perceptions of their volunteer activities

(Lachance & Parent, 2020), as opposed to relying solely on descriptive-based measures such as past experiences or length of tenure. The measurements can be conducted using established scales such as the Flow State Scale, which includes items based on personal experiences such as action-awareness and challenge-skill balance derived from the relevant literature, such as leisure studies. In light of the nature of the sports event volunteer experience examined in the current study, which is understood as a phenomenon that is subjectively perceived by individuals, it is imperative to incorporate items that are grounded in personal experiences to ensure a more suitable evaluation. The

absence of studies that consider volunteer experience as the dependent variable is a noteworthy concern. Numerous scholarly investigations in the field of volunteerism in sports events have extensively examined the phenomenon of volunteer experience (Downward & Ralston, 2005, 2006; Downward *et al.*, 2005; Lu & Schuett, 2014; Ralston *et al.*, 2004; Rogalsky *et al.*, 2016; Wang & Wu, 2014). However, these studies have identified and emphasized three primary concerns, and the current study has several limitations that should be addressed. First, there is a dearth of information regarding the development and rationale of the items included in the study (Lu & Schuett, 2014). Second, the statistical analyses conducted in this study are not sufficiently robust, as evidenced by the absence of factor analyses for the items and the lack of reporting on the Cronbach's alpha scores for the factors included in the analyses (Wang & Wu, 2014). Lastly, volunteer experience, which is a key construct in this study, lacks a clear definition and operationalization (Downward & Ralston, 2005, 2006; Downward *et al.*, 2005; Ralston *et al.*, 2004; Rogalsky *et al.*, 2016). Therefore, it is imperative to ensure appropriate

operationalization and conduct empirical analyses to examine the four variables that have been identified: motivation, satisfaction, commitment, and sense of community. This is crucial for questioning underlying assumptions and establishing connections between separate investigations of volunteer experience, as highlighted by Lachance and Parent (2020). An integrated and comprehensive analysis would enable the revelation of the concurrent effects of these four antecedents on volunteer experience. Moreover, although various studies (Kerwin et al., 2015; Lachance & Parent, 2020, in press) have suggested the existence of both direct and indirect relationships between these antecedents and volunteer experience, no comprehensive statistical analysis has been conducted to examine these relationships. It is necessary to examine the underlying assumptions regarding the significance of each antecedent in predicting volunteer experience.

Given the stated purpose and above literature review, this study is guided by the following research question: what relationships do egoistic characteristics, leisure, external influence from family members, material and purposive have to the “Athens Marathon, The Authentic” volunteer satisfaction? To answer this question, hypotheses were developed from Strigas ’s(2001) conceptual framework of volunteer experience, where volunteer experience is suggested to be directly impacted by its four antecedents: egoistic (i.e., reasons for volunteering), satisfaction (i.e., how the needs of volunteers are met; Galindo-Kuhn and Guzley, 2001), material (i.e., emotional attachment towards the event; Cuskelly & Boag, 2001), and purposive (i.e., shared purpose and common identity among volunteers; Kerwin et al., 2015). Thus, the following four hypotheses (Hs) are proposed.

H1: Material will have a direct positive relationship with the volunteer external influence.

H2: Egoistic will have a direct positive relationship with the volunteer external influence.

H3: Leisure will have a direct positive relationship with the volunteer external influence.

H4: Purposive will have a direct positive relationship with the volunteer external influence.

H5: External influence will have a direct positive relationship with the volunteer satisfaction.

Researchers have asserted the presence of indirect relationships has been asserted by researchers (e.g., Costa et al., 2006; Lachance & Parent, in press). Therefore, the current study will begin by assessing the predictive capacity of each individual antecedent in relation to volunteer satisfaction, thereby testing the formulated hypotheses. After completing this task, the examination of direct versus indirect assumptions was subjected to additional statistical analyses.

3. Material & Methods

This section presents an overview of the study’s context, followed by the data collection method (i.e., self-administered online questionnaire), procedures, and data analysis processes. The study context is the “Athens Marathon, The Authentic,” held from 2018 to 2022 in Athens, Greece. A tournament required the assistance of more than 850 volunteers. Each volunteer was assigned a formal role by the organizing committee related to the various departments of the event (e.g., security, transportation, record timing,

maintenance, and hospitality).

Individuals who offer their services on this occasion are acknowledged as sports event volunteers, as they willingly participate in recreational activities to aid in the coordination and execution of this sporting event (cf. Hoye et al., 2020). Moreover, the participants were requested to indicate their status as volunteers through self-identification in the questionnaire (refer to the questionnaire provided below). The questionnaire was completed exclusively by the participants who identified themselves as volunteers. Acknowledging the recommendation, our literature review synthesizes findings from previous studies to provide a comprehensive understanding of volunteer experiences in large-scale sporting events. Rather than solely presenting definitions or descriptions, we critically analyze empirical evidence, identify research gaps, and integrate theoretical perspectives to contextualize our research within the existing body of literature. This approach ensures that our study contributes meaningfully to the ongoing discourse and advances knowledge within the field of volunteerism and event management.

Data Collection - Data were collected through an online self-administered questionnaire using Qualtrics (an online questionnaire software). The questionnaire was inspired by Strigas's (2001) conceptual framework of volunteer experience and was developed from extant scales in the sports event volunteer literature. The questionnaire comprises 82 items across six sections: (a) purposive, (b) external influence, (c) satisfaction, (d) material, (e) egoistic, and (f) leisure. Each item is measured on a five-point Likert scale ranging from 1 'strongly disagree' to 5 'strongly agree.' In line with definitions provided for the four antecedents and

volunteer experience from the sports event volunteer literature, the following scales were selected: First, external influence was measured using 15 items adapted from Galindo-Kuhn and Guzley's (2001) sports event volunteer research. Second, the items related to egoistic, purposive, material, and leisure were measured using 57 items adapted from MacLean and Hamm's (2007); items related to organizational support, participation efficacy, empowerment, and group integration. Third, satisfaction was measured using ten items adapted from Cuskelly and Boag's (2001) survey on satisfaction commitment.

To obtain the study's ethics certificate, the questionnaire was administered to the entire volunteer workforce (n=1.307) following the completion of the event. Participants received an email from the event's tournament director the day after the event finished, which contained the questionnaire link and information related to the study. The questionnaire link was open for a period of two weeks post-event and took approximately 12 minutes for participants to complete. At the end of the data collection period, 850 volunteers (65% response rate) completed the questionnaires. Due to the significantly large sample size that was demonstrated in this study, the response rate provides a representative picture of the volunteer population at the chosen sports event (i.e., over 50% of volunteers participated). Further, this response rate can be considered to be higher than the average for online questionnaires (Sauermann & Roach, 2013) and surpasses those of other studies in the sports event volunteer literature where response rates of 13.4% (i.e., Bang et al., 2019), 25% (i.e., Dickson et al., 2015), 55.7% (i.e., Kerwin et al., 2015), and 62.6% (i.e., MacLean & Hamm, 2007) are found. The state of the art in research methods includes the integration of

quantitative and qualitative approaches to capture the complexity of volunteer experiences. Mixed-methods research designs are increasingly employed to triangulate findings and provide a comprehensive understanding of volunteer dynamics. Advanced statistical techniques and data visualization methods are utilized to analyze and interpret large datasets efficiently. Given the response rate of this study, which is representative of the selected volunteer population, it was deemed appropriate for statistical analyses to be conducted.

Sample Characteristics - Of the 850 sports event volunteers who provided useable responses, the majority were females (64.7%, n=550), unmarried (73.3%, n=620), and had at least once more participation in sport volunteer action (72.4%, n=615). Participants' education was comparably distributed between obtaining a high school diploma (18.6%, n=158), college diploma (29.4%, n=250), undergraduate degree (32.8%, n=279), and master's degree (19.2%, n=163). Most individuals self-identified as current sports/physical activity participants (85.5%, n=727) and participated in physical activity on average 3.54 times per week (SD=1.52). In relation to the event itself, most participants had not volunteered for the "Athens Marathon, The Authentic" (52.9%, n=450), but knew someone else who had (26.3%, n=223).

Data Analysis - The data were analyzed using structural equation modeling (SEM). Structural Equation Modeling (SEM) is a statistical methodology employed to evaluate linear associations among a group of latent variables, including direct and mediating effects (Shah & Goldstein, 2006). One of the underlying assumptions in Structural Equation Modeling (SEM) is that data follow a normal distribution. SPSS

was employed to assess the normality of the data for each item, utilizing techniques such as Q-Q plots, multicollinearity, and residuals. No discernible differences in normality were observed between groups. In addition to conducting normality testing, which was verified through a missing value assessment, the participant response rate was 100% (Allison, 2003). Moreover, it is worth noting that previous studies have established that sample sizes ranging from 100 to 200 cases are sufficient for conducting structural equation modeling (SEM) analyses, particularly when multiple indicators are used to determine a factor and the marker variables exhibit appropriate loadings (i.e., $> .7$). These findings are consistent with those of the current data analysis.

Data were then analyzed using a common two-step SEM analysis (Anderson & Gerbing, 1988) in SPSS AMOS 26, using maximum likelihood estimation. The two-step procedure involves first testing a measurement model through confirmatory factor analysis (CFA) and then examining the linear relationship between the latent variables aligned with the research hypotheses. The measurement model was specific to five correlated factors: material (15 items), egoistic (15 items), leisure (9 items), purposive (15 items), external influence (12 items), and satisfaction (8 items), with factor-loading scores between .70 and .95. Following the CFA, 21 items with weak factor loading scores ($< .7$) were removed from the measurement model and were not used in the subsequent analysis (Byrne, 2013): seven from material, four from satisfaction, three from external influence, and seven from leisure. The items for each factor were summed and aggregated to form an overall measure of each factor to examine internal consistency using Cronbach's alpha. Each factor revealed a Cronbach's alpha with good

internal consistency of $\geq .7$: material (.882), satisfaction (.911), external influence (.905), egoistic (.936), leisure (.917) and purposive (.909). Consistent with the SEM literature, the adequacy of the model was assessed using fit indices (Hair et al., 2010). Fit indices indicate how well the specified model fits the data used to test the hypotheses. The fit indices used to assess the hypothesized model were (a) chi-square/df ratio (χ^2/df) with its p-value, (b) comparative fit index (CFI), (c) normed fit index (NFI), and (d) root mean square error of approximation (RMSEA) along with its p-value. Wear & Heere, 2020), strong measurement models should have a χ^2/df ratio of less than three with a p-value that is not significant at the .05 level, CFI and NFI values greater than .90 (though preferably greater than .95), and a RMSEA that is less than .08 (though preferably less than .05).

4. Results

The results indicate that the hypothesized model had an unsatisfactory overall fit (see Table 1), with $\chi^2/df = 35.54$ ($p < .001$), CFI = .633, NFI = .439, RMSEA = .694, and a p-value of $< .001$. This model supported hypotheses one to three: material ($\beta = .249$, $p < .001$), satisfaction ($\beta = .324$, $p < .001$), and purposive ($\beta = .179$, $p = .010$). While these hypotheses were supported (see Figure 1), no fit index score indicated a satisfactory fit.

Therefore, to find a satisfactory fit for the data and answer our research question, an exploratory phase examined how the model could be improved (Byrne, 2013). This analysis explored various linear (direct and mediated) relationships among the four antecedents of the volunteer experience. The first exploration combined the significant direct relationships revealed in the hypothesized model and previous

suggestions that sequential (or indirect mediating) relationships may be present in volunteer experiences (Lachance & Parent, 2020). As such, a second model was assessed, which positioned experience to be directly predicted by satisfaction and external influence through the leisure and egoistic characteristics of volunteers (see Figure 2). The results indicated model two had a satisfactory overall fit (see Table 2), with $\chi^2/df = 0.024$ ($p < .001$), CFI = .901, NFI = .914, RMSEA = .176, and a p-value of (.000). The results led to the understanding that the best model fit might position external influence and egoistic characteristics to directly predict the satisfaction of volunteers.

All paths in the refined model were significant at the .001 level revealing positive direct linear relationships and indicating that the data fit well. Since all fit index scores were adequate and each relationship was statistically supported, this analysis concluded that the refined model was an adequate and good fit of the data. The findings from the refined model contribute to the theoretical understanding of volunteer satisfaction by highlighting the importance of considering both direct and mediated relationships among antecedents of volunteer experience. Moreover, they underscore the necessity of adapting theoretical frameworks to better align with empirical data and contextual factors in volunteer settings.

Table 1. Model Fit Statistics for Proposed Structural Models

Affect			β	p	Result
H1	External influence	→ Leisure	0.268	<.001	R
H2		→ Purposive	0.179	<.520	S
H3	Egoistic	→ Material	0.249	<.001	S
H4	Satisfaction	→ External influence	0.324	<.001	S
H5	Satisfaction	→ Egoistic	0.791	<.257	R

S= support and R= reject

Figure 1. Proposed structural model of the sport event volunteer satisfaction.

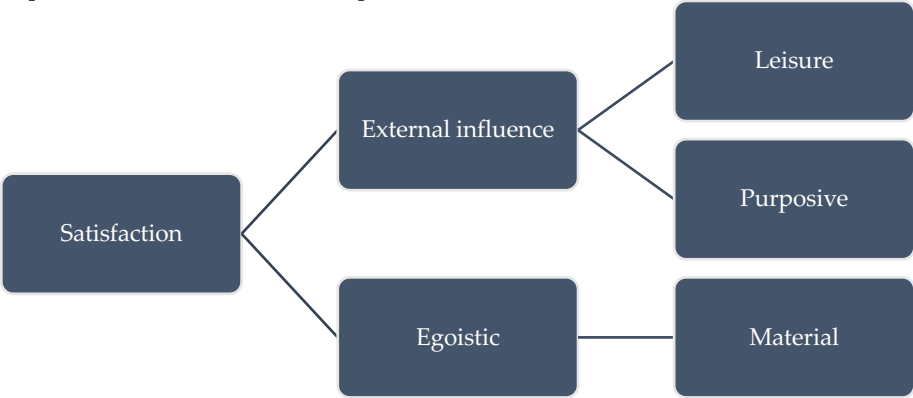
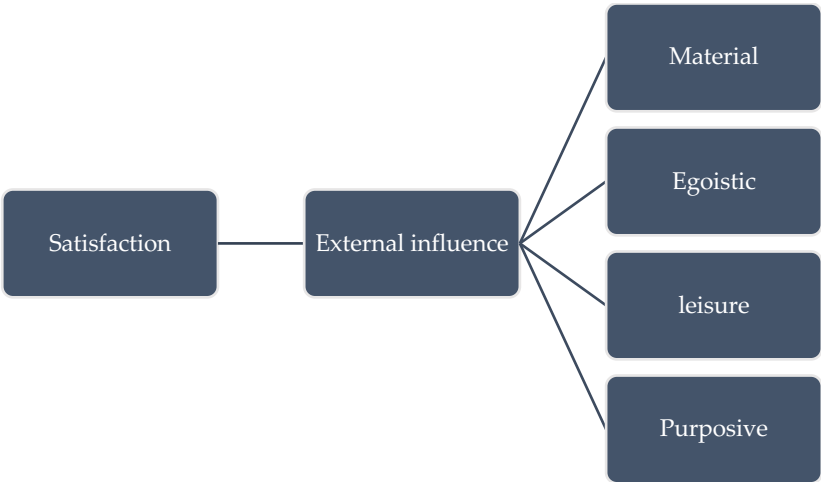


Table 2. Model Fit Statistics for Refine Structural Models

Affect			β	p	Result
H1	Material	→ External influence	0.323	<.001	S
H2	Egoistic	→ External influence	0.591	<.001	S
H3	Leisure	→ External influence	0.836	<.001	S
H4	Purposive	→ External influence	0.284	<.001	S
H5	External influence	→ Satisfaction	0.415	<.001	S

S= support and R= reject

Figure 2. Refine structural model of the sport event volunteer satisfaction.



In discussing the results, it is essential to acknowledge both the advantages and limitations of existing theoretical perspectives. While our study builds upon previous research, it also highlights the need for ongoing refinement and adaptation of theoretical frameworks to better capture the complexities of volunteer experiences. The novelty of our literature review lies in its synthesis of existing literature and the development of a refined model that provides a more comprehensive understanding of volunteer satisfaction in sports events.

5. Conclusion

In conclusion, this study aimed to empirically examine the relationship between external influence and the satisfaction of volunteers at sports events and their subsequent experiences. The findings of this study align with previous research (Strigas 2001; Kerwin et al., 2015; Lachance & Parent, 2020) regarding the significant roles of motivation, satisfaction, commitment, and sense of community in shaping volunteer experiences. However, before interpreting these findings, it is essential to elucidate the statistical concepts pertaining to models, variance, and relationships and their relevance to our results. We observed a statistical hierarchy where the presence of significant relationships is foundational in the absence of significant variance, and significant variance is fundamental when the model fit is inadequate, as indicated by a chi-square to degrees of freedom ratio of less than three. Therefore, while certain direct and indirect causal relationships were significant in our initial models, caution is warranted due to potential lack of fit. The structural model confirmed through SEM analysis (refer to Figure 2) demonstrates that volunteer external influence has causal relationships

with the four antecedents, although not all are directly related to volunteer satisfaction. Volunteer satisfaction, in turn, is influenced by a combination of direct and indirect relationships. Additionally, our study reveals direct associations between leisure, purposive, egoistic, and material volunteer experiences. These findings provide insight into the complexity of volunteer satisfaction and experiences at sports events. Regarding ease and usefulness, our research offers a comprehensive understanding of the multifaceted relationships within volunteer experiences, aiding event organizers in designing more effective volunteer management strategies. Theoretical implications include contributing to the understanding of volunteer motivation and satisfaction, while practical implications extend to enhancing volunteer recruitment, retention, and satisfaction strategies in sports event management. Moreover, our study underscores the need for future research to delve deeper into the nuanced dynamics of volunteer experiences and satisfaction, considering the interconnected nature of motivations and outcomes in volunteerism.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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