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Research Article

Basketball Referee Burnout: A Systematic Scoping Review

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Background

Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. Although extensively studied across various occupational settings, limited attention has been given to its occurrence among basketball referees. Referees hold a dual role as impartial decision-makers and mediators in high-pressure, emotionally charged environments.

Objective

This study aims to map and synthesize the existing literature on the antecedents and consequences of burnout among basketball referees.

Methods

A scoping review was conducted in accordance with Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews guidelines. A comprehensive search was performed across seven electronic databases: Scopus, PubMed, SPORTDiscus, ERIC, PROQUEST, SPONET, and ORIA. Eligible studies were published in English or Spanish and specifically examined burnout in basketball referees, with no restrictions on year of publication. Eight studies met the inclusion criteria. All included studies employed cross-sectional, quantitative designs and utilized either standardized questionnaires or custom-designed measurement tools.

Conclusion

The findings highlight considerable heterogeneity in the instruments and variables used across studies. Key antecedents of burnout included emotional exhaustion, reduced personal accomplishment, low resilience, interpersonal conflict, and time-related pressure. Reported consequences consistently involved decreased decision-making efficiency, lower motivation and satisfaction, and increased intention to abandon refereeing duties. The review emphasizes the need for further research using longitudinal and mixed-methods designs to enhance understanding and support targeted interventions for burnout prevention in basketball referees.

1. INTRODUCTION

Burnout was first recognized as a formal psychosocial construct among health care and human service workers who experienced physical and mental deterioration or reduced work efficiency. Its study was largely shaped by the development of the Maslach Burnout Inventory (MBI)[1-7] in 1981, which conceptualized burnout as an experiential syndrome characterized by emotional exhaustion, a reduced sense of accomplishment, and depersonalization.[3,5,8,9] Building on this framework, the concept of burnout was later applied to athletes, coaches, and referees, given the centrality of interpersonal relationships in sport.[10]

In sport, research on burnout has largely focused on athletes and coaches. Referees, however—particularly basketball referees—face unique occupational stressors, such as rapid decision-making under pressure, constant public scrutiny, and frequent interpersonal conflict with players, coaches, and fans. Unlike soccer and hockey referees, who operate in larger playing areas with more reaction time and, in some cases, technological support such as the Instant Replay System, basketball referees work in confined, high-pressure arenas where the crowd and

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coaching staff are in close proximity. The sport demands extremely rapid decision-making, frequent stoppages, and ongoing interpersonal interactions, all of which intensify both conflict and public scrutiny. Combined with the high frequency of calls per minute, these conditions create a unique occupational burden that increases burnout risk among basketball referees and makes their situation a distinct research concern,[11] warranting focused investigation.[12]

Although referee burnout has been recognized as a concern, existing research is fragmented and inconsistent, with variations in tools, study designs, and conceptual frameworks. To date, no review has systematically synthesized the evidence on burnout specifically in basketball referees. This is an important gap, as referees play a pivotal role in maintaining the integrity of the game, and their well-being directly affects both performance and retention.[13]

Accordingly, the aim of this scoping review is to map and synthesize the available literature on burnout among basketball referees. Guided by the Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) framework, we sought to address three research questions: (i) What is the current state of knowledge on burnout in basketball referees? (ii) What are the main antecedents and consequences identified in the literature? and (iii) What gaps remain, and what directions should future research take?

These questions are intended to provide an overview of the current research landscape, mapping the breadth of available evidence rather than evaluating specific interventions or outcomes. Scoping reviews are typically conducted to clarify key concepts, identify knowledge gaps, and inform future systematic reviews or primary research in the field.[14]

2. METHODS

2.1. INFORMATION SOURCES AND LITERATURE SEARCH STRATEGY

A scoping review systematically maps the current literature within a specific research area.[15] The existing literature on burnout among basketball referees is limited but provides meaningful contributions, particularly in terms of conceptual content, research design, and methodological approaches to data collection and analysis. Scoping reviews were deemed appropriate for this topic because they allow greater flexibility in including diverse types of studies compared to systematic reviews.[16] Moreover, they are well-suited for identifying key factors and gaps in the existing body of literature.

This scoping review was conducted in accordance with the PRISMA-ScR, with additional improvements proposed by Page *et al*.[17] and Rethlefsen *et al*.[18] The systematic search was conducted between January 04 and February 08, 2024, using a manual approach. Searches were performed in the following databases: Scopus, PubMed, ERIC, PROQUEST, SPONET, ORIA, and SPORTDiscus (EBSCO). The selection of databases reflected the multidisciplinary nature of the topic, which spans sport sciences, psychology, health, and education.

Study selection was based on title, abstract, and keywords. Keywords were refined through multiple iterations and deliberation among all reviewers. The final search strings included (Table 1):

- (Basketball) AND (referee(s) OR umpire(s) OR officials) AND ("burnout")
- (Basketball) AND (referee(s) OR umpire(s) OR officials) AND (stress OR pressure OR fatigue)
- (Sport) AND (referees OR officials) AND (burnout).

Table 1. Keywords, inclusion, and exclusion criteria used for the literature search

Database	Search keywords/strings	Inclusion criteria	Exclusion criteria
Scopus	(basketball) AND (referee* OR umpire* OR official*) AND ("burnout"); (basketball) AND (referee* OR umpire* OR official*) AND (stress OR pressure OR fatigue); (sport) AND (referee* OR official*) AND (burnout)	Peer-reviewed original research; English or Spanish; studies on basketball referees, or multi-sport referees if basketball is explicitly included	Reviews, theoretical papers, conference abstracts, project descriptions, book chapters, dissertations, studies on players or coaches, and non-English/Spanish
PubMed	("burnout"[MeSH] OR "occupational burnout") AND ("basketball referee*" OR "sport official*") AND (stress OR pressure OR fatigue)	Studies on burnout or related constructs (stress, fatigue, coping) among referees in sport; original empirical research; English/Spanish	Same as above; animal studies; non-sport contexts; duplicates
ERIC	(basketball) AND (referee* OR official*) AND (burnout OR stress OR fatigue)	Studies linking officiating, stress, and burnout in educational or youth sport contexts; English/Spanish	Reviews, editorials, non-academic sources; studies without referee samples
ProQuest	("burnout" AND referee* OR official*) AND basketball OR "team sport"	Peer-reviewed journal articles; English/Spanish; studies including basketball referees in larger team sport samples	Theses, dissertations, magazines, newspapers, and non-scholarly documents
SPONET	(referee* OR official*) AND (burnout OR stress OR pressure OR fatigue) AND basketball	Empirical studies in sport psychology/sport sciences; English/Spanish	Non-referee focus; theoretical works; duplicates
ORIA	(basketball) AND (referee* OR official*) AND (burnout OR stress OR fatigue)	Studies on officiating in basketball or multi-sport contexts; peer-reviewed; English/Spanish	Non-academic publications; studies on athletes/coaches only
SPORTDiscus (EBSCO)	(basketball) AND (referee* OR official*) AND (burnout OR stress OR fatigue); (sport) AND (referee* OR official*) AND burnout	Empirical studies in sport psychology/sport medicine; English/Spanish; basketball referees or general officials with a basketball subgroup	Reviews, conference abstracts, duplicates; studies not focusing on officiating

The search strategy followed a stepwise refinement. Initially, a focused query targeted basketball referees and burnout. Limited results prompted an expansion to related terms (stress, pressure, and fatigue) to capture studies addressing burnout dimensions indirectly. Finally, a broader search combined "sport" with officiating terms and burnout to ensure comprehensive coverage of both basketball-specific and multi-sport contexts.

Studies published in English or Spanish were eligible for inclusion. Disagreements regarding the inclusion of studies on burnout in referees from multiple team sports were resolved by including only those that explicitly reported the number of basketball referees in their samples. In addition, studies referring to sports officials in general, without specifying a particular team sport, were also considered.

2.2. ELIGIBILITY CRITERIA AND STUDY SELECTION

Studies were required to meet specific inclusion criteria to be considered for this review. Eligible studies were original, peer-reviewed research focusing on burnout among basketball referees. They had to either (i) focus specifically on basketball or (ii) include basketball referees within the context of team sports, provided basketball was explicitly discussed. Only studies published in English or Spanish were included, with no restrictions on publication year. All methodological approaches were eligible, including quantitative, qualitative, and mixed-methods designs.

Exclusion criteria encompassed reviews, abstracts, project descriptions, conference papers, interviews, theoretical papers, dissertations, and book chapters. Studies that focused exclusively on players or coaches, examined referees in other sports without explicitly including basketball, were not written in English or Spanish, or did not align with the conceptual framework of the research, were excluded. Research addressing general theoretical frameworks of burnout, or exploring its associations with stress, fatigue, psychological factors, or coping abilities without direct reference to basketball referees, was also excluded. Duplicates were eliminated, and titles, abstracts, and full texts were screened against the inclusion criteria. Article selection followed the PRISMA-ScR methodology.[19] To avoid inappropriate exclusions, all articles were independently screened by the reviewers, with disagreements resolved through discussion, as shown in the PRISMA flowchart (Figure 1).

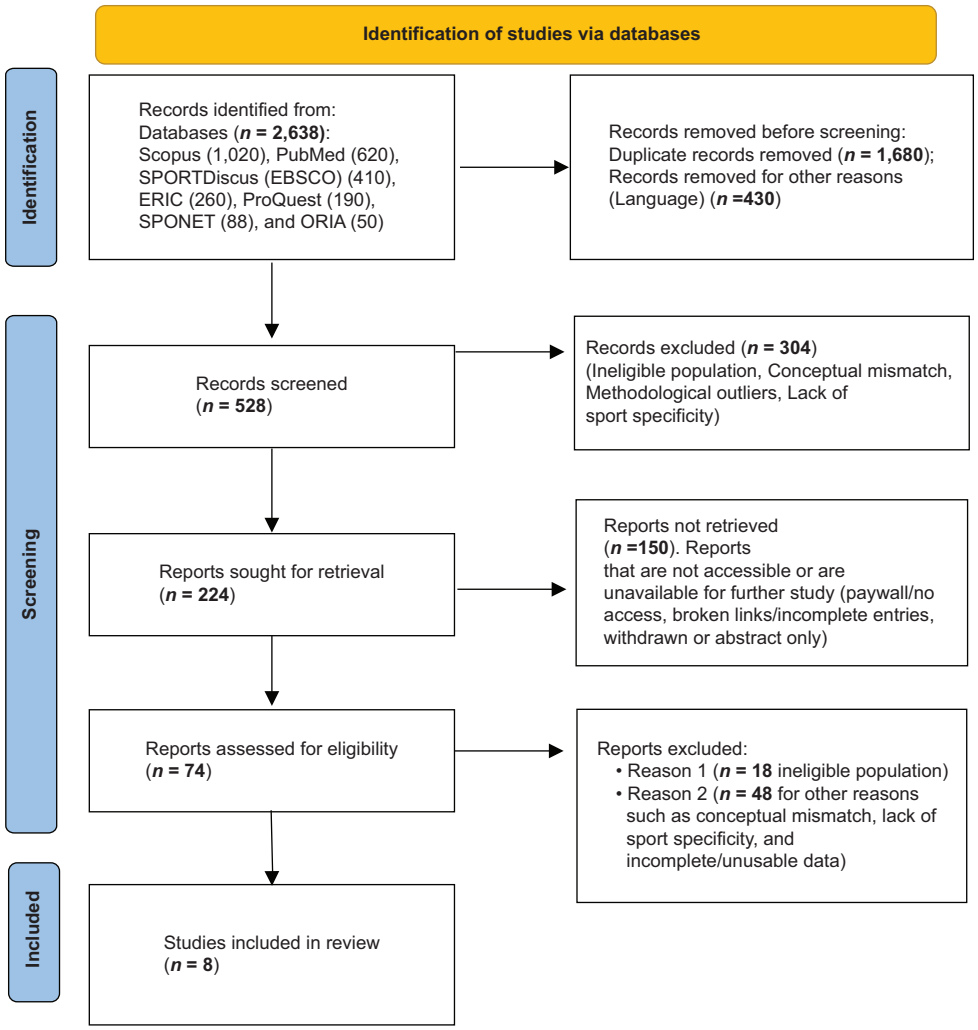

Figure 1. Flow diagram of studies identification. The diagram illustrates the number of records identified through database searching (*n* = 2,638), duplicates removed, records screened, reports sought for retrieval, reports not retrieved, full-text reports assessed for eligibility, and the final number of studies included in the scoping review. Reasons for exclusion are provided at each stage, in accordance with the 2020 guidelines for the Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

2.3. DATA EXTRACTION

The four reviewers collaboratively assessed the included studies, engaging in repeated discussions to ensure consensus. To streamline data management, a shared Google spreadsheet was created, providing all reviewers with access for recording and editing. Extracted data included participants' demographics (sample size, gender, age, nationality, refereeing level/category, and years of experience), as well as study design, methodology, instruments, and main findings.

During the eligibility assessment, 74 reports were thoroughly reviewed. Of these, 66 were excluded because they did not align with the burnout conceptual framework, focusing instead on acute stress, psychological factors, and coping skills more broadly. Although stress contributes significantly to burnout, it is not synonymous with it. Ultimately, eight peer-reviewed studies met the inclusion criteria and were retained for analysis (Table 2). A scoping review approach was chosen to map the existing evidence, provide an initial evaluation of the available data, and guide future investigations on this topic.[20]

2.4. RISK OF BIAS AND QUALITY ASSESSMENT

The risk of bias of all studies included in this field review was evaluated using the Mixed Methods Appraisal Tool (MMAT). The MMAT was selected because it is specifically designed for systematic reviews that include studies of varied methodological designs (qualitative, quantitative non-randomized, quantitative randomized, and mixed methods), allowing a comprehensive appraisal of methodological quality across heterogeneous studies. Recently published reviews in the sport sciences and physical activity domains continue to employ MMAT in similar circumstances. For example, Mojtahedi *et al*.[21] used MMAT to assess the methodological quality of 60 mixed-methods studies on match officials' experiences of abuse. In addition, Burgess *et al*.[22] used MMAT to evaluate pedagogic research in sport education sciences (Table 3). All studies included were categorized as quantitative descriptive studies. Six out of eight studies[23-28] met four of the seven MMAT criteria, whereas the remaining two differed: one[29] met five criteria, and the other met only three[30] (Table 4).

3. RESULTS

3.1. INITIAL ANALYSIS OF PRISMA-ScR

A total of 2638 potential publications were identified through a literature search in the selected databases, following procedures outlined by the PRISMA-ScR guidelines. The distribution of records by database was as follows: Scopus (1020; 38.7%), PubMed (620; 23.5%), SPORTDiscus (EBSCO) (410; 15.5%), ERIC (260; 9.9%), ProQuest (190; 7.2%), SPONET (88; 3.3%), and ORIA (50; 1.9%). After screening for duplicates, 1680 articles were excluded from further analysis. The articles were then analyzed based on their written language, title, and summary. Consequently, 430 articles were excluded because they failed to meet the language requirements. A total of 528 full-text articles that met the inclusion criteria were screened. A further 304 articles were excluded as they did not align with the eligibility requirements: 112 examined athletes or coaches instead of referees, 85 focused on stress or psychological factors not linked to burnout, 63 were methodological outliers, such as reviews or non-peer-reviewed works, and 44 did not specify basketball referees within multisport samples. Out of a total of 224 full-text reports sought for retrieval, 150 were excluded because they were either inaccessible or not available for further examination. "Inaccessible" refers to articles that were identified in the database search but could not be obtained despite institutional subscriptions, interlibrary loan requests, or direct contact with publishers. "Not available for further examination" refers to records where the citation existed in the database but no full text could be located (e.g., incomplete or outdated database entries, broken links, withdrawn publications, or conference abstracts without full manuscripts). Therefore, we included a total of 74 items for evaluation. Specifically, four were retrieved from ERIC, 25 from ORIA, 11 from ProQuest, two from SPONET, five from PubMed, six from SPORTDiscus (EBSCO), and 21 from Scopus (Table 5). This distribution highlights the broad disciplinary spread of the topic across both general and sport-specific databases. Ultimately, we excluded an additional 66 papers based on the established criteria because the study participants were not basketball referees, the conceptual framework did not address burnout, or the papers did not meet other inclusion criteria. The primary reason for exclusion concerned the study population (i.e., studies involving athletes, coaches, or medical staff rather than basketball referees). Other reasons included conceptual mismatch (studies on stress, fatigue, or coping that did not explicitly examine burnout), lack of sport specificity (multi-sport studies without identifiable basketball referees), and incomplete or unusable data (missing sample sizes, unclear results, or withdrawn publications).

Ultimately, we identified a total of eight papers on burnout that were published between 1999 and 2021. Among the eight publications, four were published within the last 4 years.[23,24,26,29] This indicates a modest but positive increase in the interest in studying burnout among basketball officials.

3.2. DEMOGRAPHICS OF BASKETBALL REFEREES

The examination of the specific attributes of the studies yielded valuable observations on the comprehensive research conducted on referee fatigue. The survey results yielded early findings about gender, the degree and length of experience, and the average age of the participants. This data provides a comprehensive overview of the individuals who participated in these studies, contributing to a deeper understanding of the subject of basketball refereeing.

A total of 3026 individuals were analyzed in the eight surveys, with a range of 30–1598 participants. Among them, 86.25% were males and 13.75% were women, as determined by four out of the eight studies that used a gender quota. The profession of basketball refereeing was mostly male-dominated, with a limited representation of women. This has prompted the need for further examination of gender disparities in the accessibility to refereeing and prospects for progress.

On average, the length of experience was 11 years, based on the data collected from four out of eight surveys. No data were available for the other studies. An essential piece of information that arose from the analyzed studies was the referees' degree of expertise. Specifically, it was determined that most research lacked information on the referees' degree of expertise. In the study conducted by Martínez-Moreno *et al*.,[24] it was revealed that most referees

Table 2. Summary of studies included in the scoping review

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
Al-Haliq *et al.*, 2014[30]	SPORT DISCUS EBSCO	Jordan	32 (120)	N. S.	N. S.	9.52 (6.189)	33.77 (7.096)	Quant., survey	CS	Referee Burnout Scale (RBS)	Refereeing level, years of refereeing experience, type of sport, stressors (errors, verbal abuse, physical abuse, performance pressure, interpersonal conflicts, assault), satisfaction, effectiveness, and productivity	To investigate the levels of burnout among sports referees in Jordan. Additionally, this study examined the relationships between referees' burnout and their refereeing level, type of sport, and years of experience as referees	Jordanian referees had moderate levels of refereeing burnout. The results also showed a significant relationship between burnout levels and the experience of referees. Less experienced referees had higher levels of burnout than did more experienced ones. Moreover, no significant relationships were found between the levels of burnout among referees and the refereeing level and type of sport they officiated

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
Jawaada and Donuk, 2021[23]	PROQUEST	State of Palestine	35 (126)	N. S.	N. S.	N. S.	Between 26-46, with a mean of (34.2±6.54)	Quan., survey	CS	RBS	Refereeing role, years of experience, type of sport, happiness working as a referee, satisfaction with federation support, demographics (age, education)	To identify the level of psychological burnout among the referees of team sports in the State of Palestine, in light of some variables	The weakness of referees' ability to adapt positively to the psychological pressures resulting from sports competitions exposes them to different levels of burnout, whose levels may vary among referees according to their personal and professional variables. The level of psychological burnout among referees of team sports was moderate
Arbinaga *et al.*, 2019[27]	ORIA	Spain	154	Mix: 20 F (13%); 134 M (87%)	Mix: 30 National and EBA (19.48%);124 referees in training (80.52%)	7.01	30.12	Quant, survey	CS	*Inventario de Burnout en Deportistas-Reducido* (IBD-R) & Resilience Scale (RS)	Resilience, demographic variables (age, sex, marital status), sport-related variables (type of sport, category, years of experience, weekly training hours, injuries).	To determine the existence of differences in the scores when assessing burnout in soccer compared to basketball referees, and to analyze if the scores on the resilience scale can act as a protective factor against burnout syndrome	Soccer referees, compared with basketball referees, show greater emotional exhaustion, depersonalization, and personal fulfillment. Those who obtained high scores in resilience (29.8%) compared to those who received low scores (70.2%) showed less emotional and personal realization, but did not show differences in depersonalization (p=0.561). Soccer referees present a greater risk of obtaining scores that indicate low resilience compared to basketball referees

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
de Almeida *et al.*, 2021[29]	ORIA	Spain	395	Mix: 76 F (19.2%);319 M (80.8%)	257 regional (65,1%), 109 national (27,6%), 29 international (7,3%)	12.34±7.83	35.11±9.18	Quant, survey	CS	Burnout Inventory for Referees (BIR), Brunel Mood Scale for Brazilian Referees (BRUMS-AB) & BIR-AB	Gender, age, region, category of refereeing (regional, national, international), academic background, years of refereeing experience, mood states (fatigue, force/ vigor, emotional imbalance, worry)	To verify the psychometric properties of the BIR on Brazilian basketball referees	A new model, called BIR-AB, was proposed, containing two negative dimensions and a positive one, with adequate adjustment indexes, acceptable and invariant reliability between genders, and in the test/validation sample. The divergent validity was also attested. Therefore, based on the previous discussions, it can be said that burnout is represented by a multidimensional syndrome (set of symptoms) that arises as a result of continuous exposure to stressful situations characteristic of the refereeing environment. In this context, Brazilian basketball referees can be identified through the presentation of components related to the dimensions of physical and emotional exhaustion, depersonalization, and sports performance

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
González-Ponce *et al.*, 2012[28]	ORIA	Spain	30	N. S.	N. S.	N. S.	24.8 (5.74)	Quan., survey	CS	Psychological Need Thwarting (PNTS), Maslach Burnout Inventory (MBI) &Work Motivation Inventory (WMI)	Autonomy frustration, competence frustration, relatedness frustration, intrinsic regulation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation	To examine the relationships between motivational antecedents and their influence on burnout in basketball referees	Referees with higher levels of self-determination will not feel the sensation of being "burned out" by the function they perform, however, when motivational regulations fluctuate in the absence of intrinsic and/or extrinsic motivations, as is the case of demotivation, a referee would not find meaning in what he or she does and, therefore, would relate positively to the feeling of emotional exhaustion. Likewise, amotivation was considered the most significant predictor of emotional exhaustion. Thus, a referee who is unmotivated in their work would have a higher prevalence of burnout, and, as different studies in other areas have found, it would be a latent risk of abandoning the refereeing function. Finally, it is necessary to consider the motivational background of referees, not only in basketball but in all sports disciplines, as they are a crucial and fundamental group for sports practice to be possible

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
Martínez-Moreno *et al.*, 2021[24]	ORIA	Spain	61	Mix: 9 F (14.8%);52 M (85.2%)	16 local (26.2%),7 national (11.5%),38 regional-autonomous (62.3%)	N. S.	26.5 (7.5)	Quan., survey	CS	Multifactor Leadership Questionaire (MLQ-5), IBD-R Reviewed Athlete Burnout Inventory, *Escala de Estrés en elÁmbito Deportive (EEAD)*	Transformational leadership, developer leadership, corrective leadership, passive leadership, stress, satisfaction, and motivation	To analyze the leadership styles, transformational, developer, corrective, and passive/avoidant, burnout level, emotional exhaustion, reduced personal accomplishment, and depersonalization, as well as knowing the level of stress and contrasting the influence that leadership has on the burnout and stress, which support basketball referees during the competition	Regarding burnout, assistant referees have the highest level of the syndrome. Consequently, it is necessary to confirm the relationship between coping strategies and burnout, and to establish measures that prevent the development of this syndrome. Depending on the category in which they perform their functions, those at the local level have a higher level of syndrome

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
Rainey, 1999[25]	SPORT DISCUS EBSCO	USA	721	Mix: 57 F (8%);664 M (92%)	N. S.	14.4 (8.3).	41.9 (9)	Quan., survey	CS	Ontario Soccer Officials Survey (OSOS) & MBI	Performance concerns, fear of physical harm, lack of recognition, time pressure, interpersonal conflict, age, and intention to terminate	To examine sources of stress among certified basketball referees and to further explore the relationships among sources of stress, burnout, and intention to terminate refereeing	Performance concerns, interpersonal conflict, and time pressure are mildly related to the stress experienced by a variety of sport officials and appear to contribute to the burnout experienced by sport officials on a regular basis. A fourth issue, fear of physical harm, is consistently identified, but the officials deny that it contributes to their stress. Finally, the rare experiences of burnout contribute in a modest way to the intentions of sport officials to terminate their officiating activities, and most officials surveyed have reported that they intend to continue officiating. When considering that other studies report the actual magnitude of stress experienced by most sport officials to be low, one could conclude that stress, burnout, and intention to terminate are not significant concerns for sport officials

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Table 2. Summary of studies included in the scoping review (*Continued*)

Authors and year	Database	Country	Number of B.R. (S.R.)	Sex	Level	Experience, years (mean [SD])	Age, years (mean [SD])	Methodology	Study design	Instrument	Factors assessed in addition to burnout	Aim of the study	Findings
Symonds *et al*., 2021[26]	PROQUEST	USA	1.598	N. S.	N. S.	N. S.	49.06 years (12.45)	Quan., survey	CS	Athlete Burnout Questionnaire (ABQ), The Perceived Available Social Support in Sport Questionnaire (PASS-Q), The Brief Resilience Scale (BRS) & The Satisfaction with Life Scale (SWLS)	Resilience (BRS), perceived social support (emotional, esteem, informational, tangible), life satisfaction (SWLS), experience (via age), weekly officiating hours, demographics (sex, ethnicity, officiating level, employment, athletic background)	To explore the relationship between officials' resilience, perceived social support, life satisfaction, experience level, time spent officiating, and perceptions of burnout from sport officiating	This study aimed to contribute to the knowledge base by examining the officiating population for burnout risk and investigating factors that influence burnout levels in the study group. Resilience and perceived social support were found to moderate burnout levels among the group of sports officials. Still, more research is needed in the officiating sector. The study's findings may aid officiating leaders in developing and implementing training programs to supplement traditional, sport-specific officiating training and education curricula

Abbreviations: B.R. (S.R.): Baseline response (Sample response); CS: Cross-sectional; EBA: Liga Española de Baloncesto; F: Female; M: Male; Mix: Indicates mixed sex or gender data; N: Sample size or number of participants; N.S.: Not stated; Quant/qual: Quantitative, qualitative; SD: Standard deviation of the participants.

Table 3: Risk of bias assessment

Criteria	Rainey[25]	González-Ponce *et al.*[28]	Al-Haliq *et al.*[30]	Arbinaga *et al.*[27]	Symonds *et al.*[26]	Jawaada and Donuk[23]	Martinez-Moreno *et al.*[24]	De Almeida *et al.*[29]
Are there clear research questions?	1	1	1	1	1	1	1	1
Do the collected data allow us to address the research questions?	1	1	1	1	1	1	1	1
Is the sampling strategy relevant to address the research question?	1	1	c	1	1	1	1	1
Is the sample representative of the target population?	0	0	c	0	0	c	0	c
Are the measurements appropriate?	0	0	1	0	0	1	0	1
Is the risk of non-response bias low?	c	c	c	c	c	c	c	c
Is the statistical analysis appropriate to answer the research question?	1	1	c	1	1	c	1	1

Note: 1=Yes, 0=No, and c=Unable to tell.

were assigned to regional/independent levels, accounting for 62.3% of the total. Smaller proportions were observed at both the local (26.2%) and national levels (11.5%). In the research conducted by Arbinaga *et al.*,[27] most participants were probationary referees. In addition, 20% of the participants were assessed at the national and first-class levels.

Additional findings on the age of the participants revealed a significant disparity. The minimum age observed was 17 years, whereas the maximum age was 72 years. The average age across all eight studies was approximately 34 years. There was minimal variation in age between countries, with referees in Spain having a lower average age compared to referees in the United States of America (USA) and Jordan. Furthermore, most surveys were conducted in countries such as Spain ($n = 4$) and the United States ($n = 2$), with one study conducted in Palestine and another in Jordan (Table 2). The disparity in mean age between studies provided valuable insights into the diverse research settings prevailing in various nations and the distinct stages in a referee's professional trajectory.

3.3. RESEARCH DESIGN OF INCLUDED STUDIES

There appear to be differences in the scales and methodologies used for instruments across the various studies. Certain studies, such as those conducted by Jawaada and Donuk[23] and Martínez-Moreno *et al.*,[24] utilized specific scales designed to assess burnout in sports referees, such as the Psychological Burnout Scale for Sports Referees and the *Inventario de Burnout en Deportistas-Reducido* (IBD-R), Reviewed Athlete Burnout Inventory. Other research used comprehensive measures, such as the MBI or the Referee Burnout Scale (RBS), to assess burnout. Data collection methods varied across studies, with some using self-assessments via questionnaires, whereas others relied on interviews or questionnaires administered by third parties, such as observers or coaches. Furthermore, the measures used have included other dimensions of burnout, such as social isolation and depersonalization, which influence both the outcomes and the understanding of those outcomes. Hence, it is essential to be cautious when comparing these outcomes, taking into account any methodological disparities and scales employed.

4. DISCUSSION

4.1. METHODOLOGICAL EVALUATION

The following sections address methodological and conceptual gaps in the literature, as well as directions for future research on basketball referee burnout. The methodology and validity of the procedures used are crucial in evaluating the quality of a survey. This research evaluates the clarity of the methods employed in eight surveys, the results obtained, and any recognized limitations. All eight studies used quantitative methods, including questionnaires or specifically designed measures to evaluate burnout.[31] Cross-sectional studies analyze data from a population or a representative sample at a specific point in time, whereas longitudinal studies follow the same individuals over an extended period.[32] Cross-sectional studies are useful for examining the prevalence of diseases, behaviors, or traits in a population, as well as investigating the relationships between variables at a specific time point. They are very efficient for examining psychological features.[33] Nevertheless, the

Table 4. Mixed methods appraisal tool analysis of Table 3

Study	Screening questions		Quantitative descriptive studies					Comments	Score
	S1.	S2.	4.1.	4.2.	4.3.	4.4.	4.5.		
Arbinaga *et al*.[27]	Yes	Yes	Yes	No	No	Unable to tell	Yes	• S1: There is a purpose, but no clear research questions • 4.3.: The questionnaire is made for athletes, not for referees or sports officials	40%
Rainey[25]	Yes	Yes	Yes	Unable to tell	No	Unable to tell	Yes	• S2: There are clear hypotheses • 4.3.: MBI is a general questionnaire and was not made for sports officials or even athletes	40%
Jawaada and Donuk[23]	Yes	Yes	Yes	Unable to tell	Yes	Unable to tell	Unable to tell	• 4.5.: Even though the study uses parametric tests like analysis of variance and independent sample *t*-test, there is no test for the distribution of the variables. To use parametric tests, the distribution of the variables must be normal. There is no reference, though, concerning tests of normality	40%
Symonds *et al*.[26]	Yes	Yes	Yes	No	No	Unable to tell	Yes	• S2: There are clear hypotheses • 4.2.: It is clearly stated that the sample is convenient, so it is not representative of the population • 4.3.: The questionnaire is designed for athletes and not for sports officials. Additionally, the researchers changed some words in the questions	40%
González-Ponce *et al*.[28]	Yes	Yes	Yes	Unable to tell	No	Unable to tell	Yes		40%
Martinez-Moreno *et al*.[24]	Yes	Yes	Yes	No	No	Unable to tell	Yes	• 4.2.: It is clearly stated that the sample is convenient, so it is not representative of the population • 4.3.: The questionnaire is designed for athletes and not for sports officials	40%
Al-Haliq *et al*.[30]	Yes	Yes	Unable to tell	Unable to tell	Yes	Unable to tell	Unable to tell	• S1. Only the purpose is stated • 4.5.: Even though the study employs parametric tests, such as analysis of variance and the independent sample *t*-test, there is no test for the distribution of the variables. To use parametric tests, the distribution of the variables must be normal. There is no reference, though, concerning tests of normality	20%
de Almeida *et al*.[29]	Yes	Yes	Yes	Unable to tell	Yes	Unable to tell	Yes		60%

Note: S1: Are there clear research questions?; S2: Do the collected data allow addressing the research questions?; 4.1: Is the sampling strategy relevant to address the research question?; 4.2: Is the sample representative of the target population?; 4.3: Are the instruments appropriate?; 4.4: Is the risk of non-response bias low?; and 4.5: Is the statistical analysis appropriate to answer the research question?

fragmented nature of the existing evidence, the methodological inconsistencies, and the limited number of studies available make it difficult to establish a coherent understanding of basketball referee burnout.[34] Although the studies have produced dependable results, using quantitative procedures with qualitative ones might improve the outcomes. Interviewing participants may provide a thorough understanding of burnout symptoms and the precise elements that contribute to it. This approach would facilitate the identification and resolution of shortcomings, as well as uncovering supplementary elements or remedies.

The surveys establish their validity by correctly addressing the subjects of their studies. Nevertheless, several researchers impose limitations or parameters on their investigations. For instance, Symonds *et al*.[26] discovered a significant association between the degree of support obtained by referees from their professional and social environments and their levels of resilience. However, further research is necessary to create specific training and support programs for referees, providing them with the essential skills to efficiently carry out their responsibilities, which in turn will result in increased satisfaction and decreased

Table 5. Distribution of records identified and retrieved across databases

Database	Records identified, *n* (%)	Records retrieved (included), *n*
Scopus	1,020 (38.7)	21
PubMed	620 (23.5)	5
SPORTDiscus (EBSCO)	410 (15.5)	6
ERIC	260 (9.9)	4
ProQuest	190 (7.2)	11
SPONET	88 (3.3)	2
ORIA	50 (1.9)	25
Total	2,638 (100)	74

burnout.[35] This need is particularly relevant given that referees are exposed to unrelenting scrutiny and elevated expectations from players, coaches, fans, and the media, all of which can erode their sense of accomplishment and intensify dissatisfaction.[36]

Overall, the studies demonstrated reliability, and the techniques used exhibit validity, resulting in precise and dependable results. However, several studies used volitional sampling, which is non-representative of the population. Voluntary sampling involves using participants who self-select into the survey. This method may increase participation, but it raises concerns regarding generalizability, as the resulting sample is unlikely to accurately represent the broader population.[37] This limitation, explicitly addressed in studies conducted by Symonds *et al*.[26] and Martínez-Moreno *et al*.,[24] hampers the application of their conclusions to a broader context. In addition, several studies used parametric tests without conducting tests for normal distribution,[38] as shown in the studies conducted by Jawaada and Donuk[23] and Al-Haliq *et al*.[30] This methodological oversight may compromise the trustworthiness of the research findings.

There is a notable methodological issue about the suitability of the instruments used to assess burnout in referees or officials. Utilizing methods that are not specifically tailored for this particular group may result in misunderstandings or the failure to consider essential elements that contribute to burnout. As burnout is shaped by both personal perceptions and external pressures, including time constraints, decision-making duties, and interpersonal disputes, measurement instruments must account for these sport-specific realities to avoid underestimating referees' vulnerability.[39] Insufficient representative samples and problems with statistical analysis require a more rigorous approach in future studies.[25,28] Utilizing suitable, customized measurement techniques, in conjunction with rigorous statistical procedures, can enhance the reliability and validity of study findings.[40]

In addition, five out of the eight studies (62.5%) did not provide specific information on the level or category at which referees were operating (Table 2). Four studies did not provide information on the gender distribution within the sample. In addition, four studies did not provide a clear definition of experience in basketball officiating. In addition, three studies (37.5%) did not include any of the three primary methodological factors (gender, experience, and degree of refereeing) (Table 2). Providing comprehensive information is essential for gaining a deeper understanding of referee burnout syndrome, as it offers insight into the conceptualization of burnout and highlights potential disparities among referees at similar levels.[41] The absence of such demographic information limits the possibility of analyzing moderators, such as age, education, or refereeing level, which other studies indicate are crucial in understanding how burnout manifests.[42]

The use of different techniques in scientific investigations may be impacted by various circumstances, including the topic of the study, the resources available, the research aims, or the pursuit of consistency.[27,29] For example, when examining psychological issues such as burnout, using questionnaires or interviews may be more suitable than observational techniques.[43] Researchers often choose methodologies depending on the resources at their disposal, such as equipment and financial means.[44] In addition, individual researchers tend to have preferences for certain approaches that are influenced by their educational background, practical knowledge, and prior research experience.[45] Researchers often employ procedures that align with previous studies on the same subject to simplify the process of comparing and interpreting findings. However, the persistence of such fragmented approaches demonstrates that methodological rigor and standardization are still lacking in basketball referee burnout research, reinforcing the importance of a scoping review to critically map and evaluate the evidence.[46]

4.2. BURNOUT MEASUREMENT

This section describes the instruments used in the included studies, providing an overview of the assessment methods of burnout among basketball referees. The eight studies[23-30] utilized various tools, including MBI, Athlete Burnout Questionnaire (ABQ), Burnout Inventory for Referees (BIR), and others. During this stage, an evaluation is typically conducted to determine the suitability of these instruments for the research purpose and whether the individual scales adequately address the research questions. In the studies conducted by Arbinaga *et al*.[27] and Martínez-Moreno *et al*.,[24] the IBD-R scale was employed to assess burnout. This tool has been specifically designed to assess burnout in athletes. Nevertheless, the application of this technique may not be ideal for referees, given the distinct challenges and high-pressure circumstances they encounter in their role, which differ from those experienced by athletes. Rainey[25] and González-Ponce *et al*.[28] used the MBI as an instrument for burnout. The MBI is widely utilized for assessing burnout and is known for its strong reliability and validity. Nevertheless, their critique highlighted the lack of specificity and consideration for the unique characteristics of the sports environment. Indeed, referees face unique occupational stressors, such as rapid decision-making under pressure, constant public scrutiny, and interpersonal conflicts with players, coaches, and fans, which distinguish their burnout profile from that of athletes or coaches.[47]

Further studies have implemented the ABQ as a tool for assessing burnout. The ABQ tool is specifically designed to evaluate burnout in athletes and does not have a specific application for referees.[35] An inaccurate evaluation of burnout may occur in this particular context. In their study, Symonds *et al*.[26] employed various tools, including the ABQ. The ABQ is effective in assessing burnout in athletes, but its applicability to referees is uncertain, given the distinct demands and obstacles encountered by referees. A study conducted by de Almeida *et al*.[29] utilized the BIR as a tool for assessing burnout. This tool has been developed with referees in mind, providing a focused and specialized assessment of their burnout. Al-Haliq *et al*.[30] applied the RBS as

an instrument for assessing burnout, which was explicitly developed for referees. A specialized tool can be employed to obtain a precise and focused evaluation of burnout within this particular context. Such tailored instruments are critical, as generic athlete-oriented scales risk overlooking referee-specific stressors such as fear of inefficiency, negative perceptions of integrity, and a lack of social recognition and financial support.[39]

In general, every instrument and tool has its own set of advantages and limitations. For instance, IBD-R is a specialized tool used to assess burnout in athletes, whereas ABQ is a tool designed for athletes in general.[48] Several tools have been developed to evaluate different aspects of individuals' well-being. According to the evaluations provided, it is evident that certain instrument tools utilized in this research area are not optimal for assessing burnout in basketball referees.[49] A tool specifically designed to address the unique requirements and difficulties of refereeing can offer a more precise evaluation of burnout in this setting. An option worth considering is the BIR or BIR-AB, which is particularly focused on officials. This argument is reinforced by findings that referees' coping strategies are not always beneficial and may, in fact, exacerbate burnout symptoms, making it vital to employ tools that can capture both maladaptive and adaptive responses.[50]

Focusing even further on the similarities and differences of burnout instruments, it was observed that these tools primarily assess burnout and its various related factors, such as stress, resilience, and social support. This suggests a consensus on the importance of these variables in the experience of burnout among referees. Most studies use the Likert scales to assess the intensity or frequency of referees' perceptions and experiences.[51] This makes it easier to quantify subjective responses and allows comparisons. Some studies have adapted generalized burnout instruments for the specific context of referees, such as the IBD-R,[24,27] the RBS for sports referees,[23,30] whereas others used modified versions of existing instruments, such as the ABQ[26] and the MBI,[25,28] adapted for referees. Nevertheless, the persistence in using non-specialized tools highlights a methodological gap, as they may fail to consider external and professional pressures, such as constant evaluations, lack of advancement opportunities, or concerns about referees' integrity, that contribute significantly to burnout.[35]

Several studies have developed and validated their own questionnaires to address specific aspects of burnout among referees. In contrast, others have adapted and revised existing tools to fit the context of referees. The inclusion of additional variables, such as the Satisfaction with Life Scale,[26] the perception of frustration in social relationships and the obstruction of basic psychological needs through the Psychological Need Thwarting Scale,[52] the incentives for officiating[53] and the leadership style through the Multifactor Leadership Questionnaire,[54] the early detection of overtraining syndrome through the Brunel Mood Scale for Brazilian Referees,[29] as well as anxiety through *Escala de Estrés en elÁmbito Deportivo*[24] shows interest in exploring how referee burnout relates to broader aspects of their well-being and self-perception.

The analysis of the psychometric properties of the tools used in these studies to evaluate burnout among basketball referees reveals intriguing characteristics. The IBD-R in Arbinaga *et al*.[27] and Martinez-Moreno *et al*.[24] demonstrated strong internal consistency, as indicated by Cronbach's α of 0.804 and 0.890, respectively. These findings suggest that the questionnaire is a reliable tool for assessing burnout dimensions. The RBS instrument used by Jawaada and Donuk[23] revealed a Cronbach index of 0.92, suggesting a high level of internal consistency. Prior studies have established the validity of the tool's structure and content. Similarly, the research conducted by Al-Haliq *et al*.[30] demonstrated a high level of internal consistency with Cronbach's alpha coefficient of 0.91, indicating strong reliability. In a recent study conducted by Symonds *et al*.,[26] the ABQ was adapted to assess burnout specifically among basketball referees. The study demonstrated strong validity and reliability, as evidenced by a Cronbach's alpha value ranging from 0.73 to 0.91. Other studies included in the field review did not provide reliability and validity indicators. In relation to the BIR-AB study conducted by de Almeida *et al*.,[29] the process of translating and adapting the tool offered valuable insights into its quality and validity. Reliability was evaluated by assessing Cronbach's alpha coefficient (α) and composite reliability (CC), with values above 0.6 being deemed acceptable. Ensuring validity is of utmost importance, particularly as referees often suffer from emotional exhaustion, cynicism, and depersonalization, outcomes that require precise and context-specific measurement to be adequately captured.[55]

Ensuring validity is of utmost importance to accurately measure the intended aspects with the instruments.[56] To thoroughly examine the validity indices of the eight surveys, we could conduct individual analyses for each investigation, as well as perform a more concise and synthesized approach. Arbinaga *et al*.[27] did not explicitly discuss the utilization of validity indices. The methodology employed descriptive statistics and correlation analyses to investigate the relationships between variables. However, it is important to note that the study's limitation lies in the lack of a comprehensive validity assessment. The survey conducted by Jawaada and Donuk[23] could benefit from a more thorough examination of validity indices. The primary focus is on measuring burnout levels among referees, without validating the instrument used through reliability or validity metrics. In their study, González-Ponce *et al*.[28] employed the Spanish version of the Psychological Need Thwarting Scale and the MBI, which are widely recognized for their strong psychometric properties. The findings indicate a strong basis, implying that the research tools employed are highly valid.

The study conducted by Al-Haliq *et al*.[30] utilized the RBS, a tool developed by Alawi,[57] which has shown strong content and construct validity, along with a high level of reliability (Cronbach's alpha = 0.91). The presence of a robust methodological framework and the use of validated tools is evident. Rainey[25] conducted research on basketball referees using well-established instruments that have been proven to be valid.[25] Symonds *et al*.[26] utilized established scales that have been rigorously tested for reliability and validity in similar populations. de Almeida *et al*.[29] discussed the creation and evaluation of the BIR and conducted psychometric testing to determine the instrument's validity and reliability. The rigorous methodological approach employed ensured the instrument's suitability for the target population.[58] The study examined the relationship between leadership styles and burnout, but did not provide comprehensive validity indices for the instruments utilized. The methodology used in the study was rigorous; however, it is essential to acknowledge a limitation in not conducting explicit validity testing.

Finally, the inclusion of studies from other nations may illuminate potential cultural, social, or economic factors

that could impact basketball officiating, contingent upon the specific circumstances within each country. It is worth noting that both studies conducted in the USA had a broader age range compared to those in European countries due to the current referee regulations in the USA. However, this wider age range may lead to increased unreliability in the sample's responses regarding burnout. The distribution of the sample based on referee rating categories may also suffer from a lack of validity and reliability. This is because previous basic studies have primarily focused on elite levels when examining the correlation between burnout and referees. However, the studies included in the field review predominantly involved referees from regional and independent leagues or those who were still in training. Such demographic and contextual variations underscore the need for cross-cultural validation of referee-specific tools, as burnout risk may be influenced by age, level of competition, and national refereeing systems.[59]

4.3. THEORETICAL UNDERPINNING/ CONCEPTUALIZATION

This section further elaborates on the antecedents and consequences of burnout identified across the studies. The eight studies investigating burnout among referees revealed notable disparities in the chosen factors. The focus lies on the relationships identified in these studies to comprehend the elements that influence burnout, as well as the resulting symptoms caused by this syndrome. The basketball referees who participated in the eight studies experienced emotional fatigue, depersonalization, and lower personal fulfillment, as highlighted by Arbinaga *et al*.[27] There is a strong relationship between having a high degree of resilience and experiencing less emotional fatigue and greater personal fulfillment. According to previous research, basketball referees tend to have higher scores on the resilience scale compared to referees in other team sports. This could be attributed to their exposure to more intense competitive environments and the increased pressure they experience during their refereeing duties.

The theoretical frameworks most often used to explain these outcomes include the Self-Determination Theory (SDT),[60] the Achievement Goal Theory (AGT),[61] and the Job Demand-Control (JD-C) model.[62] SDT posits that autonomy, competence, and relatedness are fundamental needs essential for optimal functioning and well-being; when these needs are frustrated, individuals are more likely to experience stress and emotional exhaustion. AGT highlights how task-oriented versus ego-oriented goals shape susceptibility to burnout: referees driven by ego goals, centered on outperforming others, may face heightened stress and reduced motivation when external validation is lacking. The JD-C model emphasizes that when referees face high job demands, time pressure, decision-making duties, and interpersonal disputes, whereas experience low control, the imbalance produces chronic stress and eventual burnout.

Referees' failure to effectively cope with the psychological stresses of sports tournaments results in burnout. Refereeing experience, sport type, refereeing contentment, and satisfaction with organizational support are factors that determine the degree of burnout. Resilience and perceived social support can reduce the likelihood of burnout among referees.[28] Supporting the findings of Jawaada and Donuk,[23] Martínez-Moreno *et al*.,[24] and Al-Haliq *et al*.[30] emphasized that novice referees encounter stresses such as excessive demands, errors, and ill-treatment, which ultimately result in burnout. There is an inverse relationship between satisfaction, motivation, and burnout. On the other hand, transformational leadership, growth, and corrective styles are linked to reduced stress and increased personal fulfillment.[25,26]

Recent studies have also shown that inadequate resilience leads referees to maladaptive coping strategies. Stewart *et al*.[63] found that low resilience prompts referees to engage in inward rumination, thereby undermining their external focus during matches and increasing errors.[63] Arbinaga *et al*.[27] reported that referees with low resilience under pressure suffered higher emotional exhaustion and reduced skills, making them particularly vulnerable to burnout. These findings reinforce resilience as a critical protective factor.

Emotional tiredness and potential abandonment of refereeing might be linked to a lack of internal or external motivation. Basketball referees who are focused on their own performance prefer to evaluate their skills by comparing themselves to their colleagues. On the other hand, referees who prioritize their duty analyze their abilities using self-reporting criteria or comparing their current performance to their previous performance. The diversity in goal orientation among individuals may have significant consequences for the psychological well-being of basketball referees.[64]

Additional factors include difficulty concentrating, lack of physical fitness, musculoskeletal injuries, deficiency in emotional intelligence and empathy, and perfectionism,[65] all of which can intensify emotional exhaustion. While research demonstrates several effects of burnout on referees, it is essential to note that it can also cause physical health issues, including headaches, gastrointestinal problems, and sleep disturbances. Prolonged stress and emotional exhaustion may weaken the immune system and increase susceptibility to disease. These symptoms may affect the interpersonal relationships of exhausted professionals. Burnout-related fatigue and A lack of concentration can increase referees' vulnerability to accidents and injuries on the pitch. Reduced situational awareness and slower reaction times could compromise their ability to avoid physical harm during races.[66]

Burnout is therefore not only a psychological issue but also a physical and social problem. Studies emphasize that burnout may gradually reduce referees' interest in their role, blunting their willpower and dedication, leading to detachment. As it progresses, distancing manifests as cynicism and depersonalization, with referees becoming indifferent to colleagues and vulnerable to accusations of bias or incompetence. These consequences highlight why referees face a distinct set of stressors that differ significantly from those of athletes or coaches.[67]

Simultaneously, referees experience pressures such as performance anxiety, interpersonal problems, time strain, and a fear of physical violence, which are acknowledged to contribute to burnout. Supporting the findings of Jawaada and Donuk,[23] Martínez-Moreno *et al*.,[24] and Al-Haliq *et al*.[30] showed that organizational conditions significantly influence how referees manage stress. Transformational leadership, growth, and corrective styles are linked to reduced stress and increased personal fulfillment. de Almeida *et al*.[29] established a connection between burnout among basketball referees and their continuous exposure to stressful circumstances, resulting in physical and emotional fatigue, depersonalization, and diminished athletic performance.

In addition to the well-documented factors, the studies indirectly pointed to organizational gaps that remain underexplored. All studies emphasized different factors that contribute to referee exhaustion, but some additional organizational contributors are not explicitly mentioned in these studies. These include a high workload, lack of recognition for the role of referees, personal life imbalance, inadequate training in stress management and psychology for referees, questioning of referees' integrity by coaches, fans, players, and media personnel, low self-esteem, and insufficient financial or career support. The absence of advancement opportunities reinforces referees' perception of ineffectiveness and intensifies dissatisfaction and exhaustion, as noted in prior work.[68]

Ultimately, demographic factors also contribute to burnout. Dorsch and Paskevich[34] found that lower-rated referees reported less stress than elite referees, highlighting competitive level as a moderator. Al-Haliq *et al*.[30] found no significant differences in education or refereeing category among Iraqi referees, but confirmed the crucial influence of age and experience. Together, these findings underscore that demographic context, in conjunction with psychological and organizational factors, influences how burnout develops and evolves.

4.4. ANTECEDENTS AND CONSEQUENCES OF BURNOUT

This theme examines the main antecedents that contribute to burnout among basketball referees and the consequences identified in the reviewed studies. A synthesis of studies has identified several key factors that contribute to burnout among referees, including personal conflicts with difficult coaches or players, as well as the fear of physical harm, such as being attacked by players or fans.[69] Time pressure and its impact on family relationships, fear of making mistakes in refereeing decisions, negative perceptions of the referee's integrity by coaches, fans, players, and media workers, fear of inefficiency and lack of motivation, and a lack of social recognition and financial support are also significant contributors.[70]

These factors have been shown to have a detrimental effect on referees' mental well-being and overall job satisfaction, particularly when officials struggle to handle or adjust to these pressures, or when they realize that their efforts do not lead to the desired level of performance.[29] The ongoing mental and emotional strain that referees endure throughout matches often leads them to seek coping methods that may not always be beneficial, thereby worsening the symptoms of burnout.[24]

In terms of consequences, burnout is associated with emotional exhaustion, depersonalization, and reduced personal fulfillment.[30] Over time, burnout may gradually reduce referees' interest in officiating, blunting the willpower and dedication that initially fueled their commitment and leading to detachment and decreased satisfaction.[25] Distancing may manifest as cynicism, in which referees develop negative attitudes toward their role, while the risk of accusations of bias or incompetence increases among "exhausted" officials. Depersonalization also emerges, with referees becoming distant or indifferent toward colleagues as a defense mechanism against further strain.[23,27]

Beyond psychological outcomes, burnout also carries physical health consequences, including headaches, gastrointestinal problems, sleep disturbances, weakened immunity, and greater vulnerability to injuries on the court due to fatigue, reduced situational awareness, and slower reaction times. These symptoms can also undermine interpersonal relationships, both within the professional sphere and in referees' personal lives.[26,28]

Overall, the reviewed evidence suggests that burnout among basketball referees is a result of an interplay between personal, interpersonal, and organizational factors, and it has far-reaching consequences. These professionals face a distinct set of stressors and debilitating factors that separate them from athletes and coaches, making the study of antecedents and outcomes particularly relevant to this occupational group.[71]

4.5. LIMITATIONS OF REVIEWED STUDIES

Several studies suffer from a small sample size or a lack of variety in terms of demographic factors, such as age, gender, or experience level. This might impact the potential for extrapolating the results to the broader community of referees. All of the investigations employed a cross-sectional design, which enables a single-point analysis of the data. While cross-sectional studies are valuable in detecting connections, they are unable to establish causation or track changes in burnout over time.

A significant number of the researchers used self-reporting methods to evaluate burnout and its associated constructs. Self-report measures are susceptible to biases, such as social desirability bias or response bias, which may impact the accuracy of the reported data. When data are gathered using the same approach for both predictive and criterion variables, there is a possibility of common technique bias[23,24,27,28] This bias might cause observed associations to be exaggerated owing to methodological issues rather than genuine interactions between variables.[72] However, while the studies have mentioned particular instruments for measuring burnout, it is crucial to evaluate the accuracy and consistency of these measures. The results might be influenced by factors such as the validity of the manufacturing process, the internal consistency of the data, and the reliability of test repetition.

Previous research may not have adequately considered contextual variables that might impact referee fatigue, such as organizational culture, support networks, or unique obstacles in different leagues.[73] By addressing these constraints, future research on referee fatigue can be improved in terms of validity and trustworthiness, ultimately leading to a more comprehensive understanding of this vital subject. In addition, previous research has employed burnout questionnaires developed initially for other groups, such as athletes, rather than creating specific instruments tailored to referees. This may result in mistakes when collecting the distinct pressures and burnout experiences that are individual to referees. Subsequent investigations should prioritize the creation and verification of burnout instrument tools tailored exclusively for referees, ensuring that the evaluations accurately reflect their experiences. Furthermore, the underrepresentation of female officials in research is a notable constraint that highlights the need for future studies to focus on the experiences and burnout of female referees.[74]

4.6. PRACTICAL IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

According to the burnout literature review, it is suggested that future studies should focus on specific areas to enhance

comprehension and address the issue of burnout in the refereeing sector. First, it is recommended that qualitative research be conducted to investigate the underlying factors and outcomes of burnout among referees. The qualitative technique yields comprehensive data, facilitating an understanding of reviewers' subjective experiences and perspectives. Undoubtedly, future studies might gain advantages by integrating qualitative and quantitative methodologies to get more insightful responses from referees.

In addition, future research should aim to establish connections with established theoretical frameworks such as the SDT,[61] the AGT,[62] the JD-C model,[75] the Referee Retention Scale,[76] and other relevant theories. This will facilitate a deeper understanding of the underlying mechanisms that contribute to referee burnout. It is essential to consider various factors that can help prevent and address burnout among referees. This includes implementing training and support programs that can enhance referees' understanding of their professional role, their refereeing skills, and most importantly, their mental and psychological readiness. The objective should be to cultivate a mentality that enables referees to consistently perform at their highest level, leveraging training, goal setting, concentration, self-dialogue, pre-game preparation, and post-game assessment, as explicitly outlined in the FIBA National Referee Curriculum (Level 3).[77(p22)] Moreover, contemporary studies have the potential to examine the impact of implementing new technology, such as instant replay (a short piece of film in a sports broadcast that shows a particular action in a game again, immediately after it has happened),[78] on the emotional responses of basketball referees.

Examining the effects of emerging technologies, such as instant replay, on referees' emotional reactions and stress levels is crucial. Further investigation is needed to explore the potential of technology in delivering immediate assistance and feedback to referees during matches, thereby influencing the development of policies and procedures for its integration. Further investigation is warranted to examine the impact of organizational culture, support systems, and workload management on reducing burnout. It is crucial to implement policies that foster a supportive work environment. This includes providing sufficient rest periods, fair game assignments, and access to mental health resources.[79]

Future research needs to consider the unique challenges and stressors that exist within various sports, leagues, and levels of competition. Having a comprehensive understanding of these contextual factors will enable the customization of interventions and support mechanisms to cater to the specific requirements of referees in different environments.[80] It is crucial to acknowledge and tackle the issue of the lack of female referees in research. To promote gender inclusivity and equality in support programs, it is essential to investigate the unique experiences and burnout factors that female referees encounter. This involves analyzing gender-specific stressors and implementing interventions that specifically address their needs.[81] Further investigation is needed to explore the coping strategies utilized by referees to effectively handle stress and mitigate the risk of burnout. Understanding effective strategies, such as social support, relaxation techniques, and resilience training, can provide valuable insights for creating targeted interventions. Further research should explore the role of personal resilience and strategies for its development among referees.

It is of utmost importance to develop and validate specialized burnout assessment tools designed explicitly for referees. These tools should consider the specific stressors and challenges faced by referees, providing precise and reliable assessments of burnout. Continued research and development of these tools will enhance the accuracy of burnout assessments and facilitate the early detection and intervention. To maintain the integrity of future research, it is imperative to uphold rigorous ethical standards.[82] This includes securing voluntary participation, safeguarding confidentiality, and ensuring responsible reporting of findings. Researchers should consider the potential effects of their findings on referees' professional trajectories and overall welfare.

5. CONCLUSION

The review shows that research on burnout among basketball referees remains scarce and fragmented, with only eight empirical studies published between 1999 and 2021. These studies are mostly cross-sectional and quantitative, relying on heterogeneous instruments (e.g., MBI, ABQ, RBS, and BIR). Overall, referees report moderate levels of burnout, but findings vary due to methodological inconsistencies and small, non-representative samples.

Antecedents consistently include interpersonal conflict, time pressure, lack of recognition, thwarted psychological needs, leadership styles, low resilience, and demographic factors such as age and refereeing experience. Consequences involve emotional exhaustion, depersonalization, a reduced sense of personal accomplishment, lower satisfaction and motivation, physical and health complaints, and, in some cases, an increased intention to abandon refereeing duties.

The review identifies significant gaps, including the absence of longitudinal designs, limited female representation, cultural homogeneity, and the frequent use of instruments not explicitly designed for referees. Future research should prioritize larger and more diverse samples, mixed-method and longitudinal designs, and the development and validation of referee-specific burnout instruments (e.g., BIR-AB). In addition, preventive measures, resilience training, organizational support, and the impact of technological innovations in officiating should be further explored.

In conclusion, while burnout among basketball referees is a recognized issue, current evidence is limited. By systematically mapping the available studies, this review highlights the need for methodologically rigorous, referee-specific research to better understand antecedents, consequences, and effective interventions aimed at safeguarding referees' well-being and sustaining their role in sport.

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The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: All authors
Formal analysis: All authors
Investigation: Theodoros Rachiotis, Manolis Adamakis
Methodology: All authors
Writing – original draft: Theodoros Rachiotis
Writing – review & editing: All authors.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

CONSENT FOR PUBLICATION

Not applicable.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the first author, Theodor Rachiotis, upon reasonable request.

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