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ADMINISTRATIVE INFORMATION**Support** - N/A.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202470025**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 July 2024 and was last updated on 08 July 2024.**INTRODUCTION**

Review question / Objective Research Questions: – What is the quality of the methods applied to Gaelic football Performance Analysis research? – What insights does the existing literature in Gaelic football provide on the factors that contribute to success? Objectives

- To appraise the body of literature identifying gaps (overall body of literature on PA in Gaelic Football)
- To analyse methodological rigour, sample size, and characteristics (research design and sampling techniques).
- To assess the suitability and replicability of statistical methods employed in the literature (appropriateness of the statistical techniques used and assess whether these methods are clearly described and replicable).

Rationale Performance analysis (PA) is a widely accepted discipline of sports science which involves the systematic analysis of actual sports performance and provides valuable input to inform

the coaching process (Drust, 2010; O'Donoghue, 2015). There is growing recognition that PA is seen as crucial to sports teams preparing strategies and tactics, identifying areas to improve and analysing opposition (Lord et al., 2020). PA is increasingly being utilised at all levels in Gaelic Games, with almost half (49%) of GAA coaches surveyed nearly ten years ago using PA (Martin et al., 2017). As the use of PA has grown in Gaelic Games, so has the recognition of the analyst's role in creating effective learning environments and facilitating the communication of tactical strategies. There is a substantial body of literature supporting PA practices in Gaelic Football (GF), highlighting the importance of securing possession (Allister et al., 2018; Mangan et al., 2017; McGuckin et al., 2020; Timmons et al., 2022) and converting it into scores (Bradley & O'Donoghue, 2011; McGuigan & Collins, 2021; McGuigan et al., 2021). Given the established body of PA research within the Gaelic Football community, it is imperative to critically synthesise this research to evaluate methodological rigor and provide a comprehensive overview of insights. This review of current GF

research will help identify knowledge gaps, improve transparency, and reduce unnecessary duplication of studies. It aims to inform future research strategies and enhance coaching knowledge, ultimately advancing the field of Gaelic Football research and applied practice.

Condition being studied Study Sample and Participants; Experimental Design; Reliability testing protocols; Statistical testing Approaches; Performance variable and outcome results.

METHODS

Search strategy The search strategy for this systematic review will encompass three key components:

Electronic Searches:

- The search will be conducted across four targeted databases: Google Scholar, PubMed, Web of Science, and Scopus.
- The sole keyword and search term will be "Gaelic Football".
- Searches will be restricted to studies published between 2004 and 2024.
- Only studies published in English will be included.

Reference List Screening:

- Comprehensive screening of the reference lists of included articles to ensure saturation of relevant material.
- A 'snowball' search strategy will be employed using Google Scholar to identify and screen studies that cite the included articles.

Database and Journal Selection:

- Based on their representation of publications related to the tactical analysis and performance evaluation of observational match analysis in Gaelic Football.

On 25th June 2024, a systematic search was conducted across the four databases mentioned above, returning a total of:

- Google Scholar (n = 256)
- PubMed (n = 142)
- Web of Science (n = 258)
- Scopus (n = 267)

The inclusion criteria were defined as studies published between 2004 and 2024 with "Gaelic Football" in the title or abstract. Covidence software will be used to retrieve studies and remove duplicates.

The screening process will involve two stages:

- Title/Abstract Screening: Two authors will independently screen the titles and abstracts against the inclusion criteria.
- Full-Text Screening: Studies that meet the criteria will be screened in full text by two authors.

Disagreements at any stage will be resolved through consensus. Abstracts, conference papers, and other reports will be excluded.

Participant or population

- Senior Men's Gaelic Football Matches.
- Senior Ladies Gaelic Football Matches.
- Competitions organised by the Gaelic Athletic Association (GAA) and Ladies Gaelic Football Association (LGFA).

Intervention This review will evaluate observational match data studies specifically focusing on performance analysis within the context of Gaelic football. These studies systematically collect and analyse various aspects of performance during Gaelic football matches. They use statistical analysis to identify key success factors, trends, and patterns of play. As a result, there is no specific intervention.

Comparator Once suitable studies have been chosen for the systematic review, we will evaluate the methodological rigor of each study by examining the following aspects:

1. Design & Sampling

- Sampling Method: Describe the method used to select participants and matches.
- Inclusion/Exclusion Criteria: Specify criteria used to select study participants and matches. Evaluate the adequacy of sample details such as competition level and stage of competition. Justify the sample size based on study objectives.

2. Study Design

- Experimental Design: Detail how data was collected, including software and tools used for data extraction and analysis.

3. Validity

- Variable Selection: Discuss criteria for selecting study variables (e.g., based on research, theoretical frameworks, expert panels).
- Operational Definitions: Specify if operational definitions were provided for each variable and describe these definitions.

3. Validation Processes

- Outline any validation methods used for variables, such as expert panel, or statistical validation.

4. Reliability

- Assess the reliability of data collection and analysis systems.
- Describe reliability tests conducted (e.g., inter-rater reliability, intra-rater reliability) and report outcomes if available.

Study designs to be included Observational Match Play Data (2004 -2024).

Eligibility criteria – Full-text, peer-reviewed, primary research articles written in English. The research should provide complete access rather than just an abstract or summary. The research should have undergone a review process by experts in the field, ensuring its quality and validity. Studies should include original research rather than summarising existing research.

- Research studies published between 2004 and 2024.
- Studies should be published in scientific journals, indicating a level of quality and adherence to research standards.
- The included studies should have an observational research design. The results must be based on observing and analysing events without intervening or manipulating variables.
- The research should focus on Gaelic Football games in competitions organised by the Gaelic Athletic Association (GAA) and Ladies Gaelic Football Association (LGFA).

Information sources

- The search will be conducted across four targeted databases: Google Scholar, PubMed, Web of Science, and Scopus.
- Studies should be published in scientific journals, indicating a level of quality and adherence to research standards.

Main outcome(s)

- Assess the overall methodological rigor of Gaelic football Performance Analysis studies.
- Identify strengths and weaknesses in research practices within the field.
- Evaluate the reliability and validity processes employed in Gaelic Football research.
- Provide recommendations to enhance methodological rigor in future studies in Gaelic Football and the field of Performance Analysis.

Data management The research team, possessing extensive expertise in academic research, Gaelic Football, and Sports Performance Analysis, will design the inclusion and exclusion criteria. Two reviewers will subsequently be assigned, one specialising in Sports Performance Analysis and Gaelic Football and the other in

methodological rigor, to select suitable studies for review. All collected data will be securely stored on a password-protected HP Omen 15c Laptop and backed up on a password-protected OneDrive account. Data extraction will be facilitated through Covidence software (<https://www.covidence.org/>) for screening and extraction processes. Comprehensive data analysis will be conducted using Microsoft Excel and NVivo.

Quality assessment / Risk of bias analysis The methodological quality of the selected studies will be evaluated following the guidelines used in previous performance analysis research studies. The quality assessment criteria will focus on specific aspects of the Performance Analysis methodology design, including:

1. The level of competition is clearly stated (No=0, Yes=1).
2. The number of games included in the studies is clearly stated (No=0, Yes=1).
3. The grade of the sample is clearly stated (No=0, Yes=1).
4. Eligibility (inclusion/exclusion) criteria and sampling method are clearly stated (No=0, Yes=1).
5. Contextual variables (e.g., type of competition, stage of the competition, match status, or opponent) are taken into account in the analysis or clearly specified (No=0, Yes=1).
6. The study objective(s) is/are clearly set out (No=0, Yes=1).
7. Data collection processes are clearly set out (No=0, Yes=1).
8. All variables are clearly defined (No=0, Yes=1).
9. A validation process is used to determine variables (No=0, Yes=1).
10. An expert coaching panel is used to define new variables (No=0, Yes=1).
11. The type of reliability test is not stated, mentioned, or measured (Not stated = 0, Mentioned = 1, Measured = 2).
12. The reliability results are clearly presented (with data) (No=0, Yes=1).
13. The type of statistical test is not stated, mentioned, or measured (Not stated = 0, Mentioned = 1, Measured = 2).
14. Justification of the statistical processes used in the study is clearly presented (No=0, Yes=1).

Each criterion will be rated, with a maximum total score of 10 points. Where 'clearly' is included within the criteria, the relevant information must be explicitly detailed in the study.

Strategy of data synthesis A research synthesis will be compiled to effectively summarise and interpret findings. Studies will be organised and

evaluated based on key themes such as design and sample characteristics, variables analysed, reliability assessments, validity processes, and statistical analysis employed. Findings from each category will be summarised qualitatively, highlighting similarities, differences, and recurring patterns observed across the included studies. This approach allows for a comprehensive exploration of the synthesised data. Additionally, tables and figures will be utilised to visually summarise key findings and facilitate comparison between studies. By adopting a narrative synthesis approach, the review aims to provide an insightful interpretation of results, providing insights into methodological practices and outcomes related to performance analysis in Gaelic football.

Subgroup analysis The study will include the following subgroups:

- Club Football vs. County Football
- Knockout Games vs. Non-Knockout Games
- Winners vs. Losers.

Sensitivity analysis N/A.

Language restriction English only.

Country(ies) involved United Kingdom.

Keywords Performance Analysis; Gaelic Football; Observational Match Play Analysis; Validation, Reliability; Methodological Rigor Performance Analysis; Gaelic Football; Observational Match Play Analysis; Validation.

Contributions of each author

Author 1 - Jonathan Bradley - Author 1 drafted the manuscript.

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