

Quality Analysis in Psychology Research on Human Resource Management in the Manufacturing Industry

Aria Elshifa¹, Agung Zulfikri², Rival Pahrilal³

¹ Institut Teknologi dan Sains Nahdlatul Ulama Pekalongan

² Telkom University

³ Universitas Nusa Putra

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ABSTRACT

This bibliometric study explores the quality of research in psychology concerning Human Resource Management (HRM) practices within the manufacturing industry. With a focus on assessing trends, patterns, and gaps in existing literature, the study employs a systematic approach to evaluate the depth and rigor of scholarly inquiry. Through a comprehensive analysis of publication metrics, including citation counts, authorship patterns, and thematic clusters, key insights emerge regarding the state of HRM research in manufacturing. Findings reveal a dynamic landscape characterized by diverse thematic clusters, ranging from the psychological dimensions of HRM to strategic practices and organizational behavior. While certain areas receive significant attention, such as psychology, strategic HRM, and HRM practices, others, including human capital management and industrial relations, are relatively underexplored. This study highlights the importance of addressing methodological inconsistencies and theoretical gaps to advance both theoretical development and practical implications in HRM research within the manufacturing sector.

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Corresponding Author:

Name: Aria Elshifa

Institution: Institut Teknologi dan Sains Nahdlatul Ulama Pekalongan

Email: elshifapusmanu@gmail.com

1. INTRODUCTION

In recent decades, the field of Human Resource Management (HRM) has garnered significant attention within the manufacturing industry, as organizations strive to optimize their workforce for enhanced productivity and competitive advantage [1]–[3]. Within this dynamic landscape, the quality of research in psychology concerning HRM practices has emerged as a focal point for scholars and practitioners alike [4], [5]. This bibliometric

study aims to delve into the depth of existing literature, analyzing its quality, trends, and implications within the manufacturing sector.

The manufacturing industry represents a cornerstone of global economies, driving innovation, employment, and economic growth [6]–[8]. Within this sector, effective HRM practices are crucial for fostering employee engagement, talent retention, and organizational performance [9], [10]. As such, scholars have increasingly turned to psychological research to understand the intricate dynamics between

human behavior, organizational culture, and HRM strategies within manufacturing contexts.

Despite the proliferation of research in this domain, concerns regarding the quality, rigor, and relevance of studies persist [5], [11], [12]. Methodological inconsistencies, theoretical gaps, and fragmented knowledge landscapes pose challenges to both researchers and industry practitioners seeking evidence-based insights [13], [14]. Consequently, there is a pressing need to conduct a comprehensive bibliometric analysis to assess the current state of research quality in psychology-related studies on HRM within the manufacturing sector.

Several key research problems underpin this study:

1. **Quality Assessment:** How can the quality of research in psychology concerning HRM in the manufacturing industry be evaluated?
2. **Trends and Patterns:** What are the prevailing trends, themes, and methodologies employed in existing literature?
3. **Research Gaps:** What are the major gaps and inconsistencies in the current body of literature, and how do they impact theoretical development and practical implications?

To address the identified research problems, this study aims to achieve the following objectives:

1. **Evaluate Research Quality:** Develop a systematic framework for assessing the quality and rigor of psychology-related research on HRM in the manufacturing industry.
2. **Identify Trends and Patterns:** Conduct a comprehensive bibliometric analysis to identify prevalent themes, emerging

topics, and methodological approaches within the literature.

3. **Explore Research Gaps:** Identify and analyze gaps in existing literature to provide insights into areas requiring further investigation and theoretical development.

This study holds significant implications for academia, industry, and policymakers. From an academic perspective, it offers a comprehensive assessment of research quality and identifies trends, thereby advancing theoretical frameworks and methodological approaches within the field of HRM in the manufacturing sector. Industry practitioners can leverage the findings to inform HRM strategies, talent management practices, and organizational development initiatives, leading to enhanced operational efficiency and competitive advantage. Furthermore, policymakers and regulatory bodies can utilize the insights generated from this study to formulate evidence-based policies aimed at fostering a conducive environment for human capital development and sustainable growth within the manufacturing industry.

2. LITERATURE REVIEW

Psychology research in human resource management within the manufacturing industry has explored various aspects crucial for organizational success. Studies have delved into topics such as employee craftsmanship spirit, safety training practices, green human resource management (GHRM), and its impact on employee empowerment and pro-environmental behaviors. For instance, research in China has focused on the influence of spiritual leadership on craftsmanship spirit, with findings indicating a positive correlation between spiritual leadership and employee craftsmanship spirit, mediated by autonomous motivation and moderated by a caring ethical climate [15]. Similarly, studies in Malaysia have examined safety training practices in the manufacturing sector to

enhance safety performance [16] Moreover, investigations in Pakistan have highlighted the significance of GHRM in promoting pro-environmental behaviors among manufacturing employees, emphasizing the role of employee empowerment as a moderating factor [17]–[19]. These studies collectively underscore the importance of effective human resource management strategies tailored to the manufacturing industry to foster employee well-being, safety, and environmental consciousness while enhancing organizational performance.

3. METHODS

This research employs a bibliometric approach to conduct a comprehensive quality analysis of psychology research pertaining to human resource management (HRM) within the manufacturing industry. To begin, a systematic search strategy will be formulated to gather relevant scholarly literature from reputable academic databases such as PubMed, PsycINFO, Web of Science, and Scopus. The search terms will encompass variations of "human resource management," "manufacturing industry," and "psychology." Subsequently, inclusion and exclusion criteria will be established to ensure the selection of pertinent studies. Quality assessment will be conducted utilizing established bibliometric indicators including citation counts, journal impact factors, h-index, and author affiliations, among others. Additionally, the content of selected articles will be scrutinized to evaluate methodological rigor, theoretical frameworks employed, and the relevance of findings to the intersection of psychology and HRM in manufacturing. Statistical analyses will be employed to identify trends, patterns, and gaps within the literature. Moreover, network analysis techniques will be utilized to visualize relationships among authors, journals, and keywords, providing insights into research collaboration and thematic clusters. The entire process will be carried out rigorously to ensure the reliability and validity of the findings, contributing to a comprehensive understanding of the quality

of psychology research in HRM within the manufacturing sector.

4. RESULTS AND DISCUSSION

4.1 Research Data Metrics

Table 1. Data Citation Metrics

Publication years	: 1972-2024
Citation years	: 52 (1972-2024)
Paper	: 980
Citations	: 554684
Cites/year	: 10667.00
Cites/paper	: 566.00
Cites/author	: 295277.17
Papers/author	: 500.20
Author/paper	: 2.47
h-index	: 339
g-index	: 734
hI,norm	: 242
hI,annual	: 4.65
hA-index	: 95
Papers with ACC	: 1,2,5,10,20:936,921,859,709,437

Source: Publish or Perish Output, 2024

The provided table presents bibliometric data pertaining to the publication years, citation years, and overall impact of research within the domain of human resource management (HRM) in the manufacturing industry. Spanning from 1972 to 2024, a total of 980 papers have been published, accumulating an impressive 554,684 citations over the years. This translates to an average citation rate of 10,667 per year, showcasing the significant impact and scholarly attention garnered by this field. On average, each paper has received 566 citations, indicating a robust level of influence within the academic community. Authors have contributed substantially to this body of literature, with an average of 500.20 papers per author and an authorship ratio of 2.47. The h-index, a measure of both productivity and citation impact, stands at 339, highlighting the widespread recognition and dissemination of research findings. Furthermore, the g-index, which accounts for highly-cited papers, is calculated at 734. The hI,norm and hI,annual values provide normalized and annualized

versions of the h-index, respectively, further emphasizing the enduring impact of the research. Additionally, the hA-index, focusing on the impact of an author's work, is determined to be 95. Notably, the majority of papers have been cited at least once, with percentages ranging from 93.6% for papers

with one citation to 43.7% for those with twenty or more citations, underscoring the breadth and depth of scholarly engagement with the subject matter. Overall, these metrics reflect the substantial scholarly contributions and the significant influence of research in HRM within the manufacturing industry.

Table 2. Top Cited Research

Citations	Authors and year	Title
16435	MA Huselid (1995)	The impact of human resource management practices on turnover, productivity, and corporate financial performance
13205	M Armstrong (2006)	A handbook of human resource management practice
10664	CD Wickens, WS Helton, JG Hollands, S Banbury (2021)	Engineering psychology and human performance
7508	JE Delery, DH Doty (1996)	Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions
7205	F Luthfiansm, BJ Avolio, JB Avey (2007)	Positive psychological capital: Measurement and relationship with performance and satisfaction
6975	M Armstrong, S Taylor (2020)	Armstrong's handbook of human resource management practice
6697	JP MacDuffie (1995)	Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry
6346	JB Arthur (1994)	Effects of human resource systems on manufacturing performance and turnover
6265	B Becker, B Gerhart (1996)	The impact of human resource management on organizational performance: Progress and prospects
5901	JT Delaney, MA Huselid (1996)	The impact of human resource management practices on perceptions of organizational performance

Source: Publish or Perish Output, 2024

The table presents a selection of influential citations within the field of human resource management (HRM), showcasing seminal works that have significantly shaped scholarly inquiry and practice in this domain. MA Huselid's landmark study in 1995 on the impact of HRM practices on turnover, productivity, and corporate financial performance stands out as a foundational contribution, highlighting the strategic importance of HRM in driving organizational outcomes. Other notable works include M Armstrong's comprehensive handbook on HRM practice, CD Wickens et al.'s exploration

of engineering psychology and human performance, and JE Delery and DH Doty's examination of different modes of theorizing in strategic HRM. These citations cover diverse aspects of HRM, ranging from theoretical frameworks to practical applications, underscoring the multidimensional nature of the field. Overall, this table provides a rich overview of key literature informing HRM theory, research, and practice, highlighting the enduring impact of seminal contributions and ongoing avenues for exploration and advancement in the field.

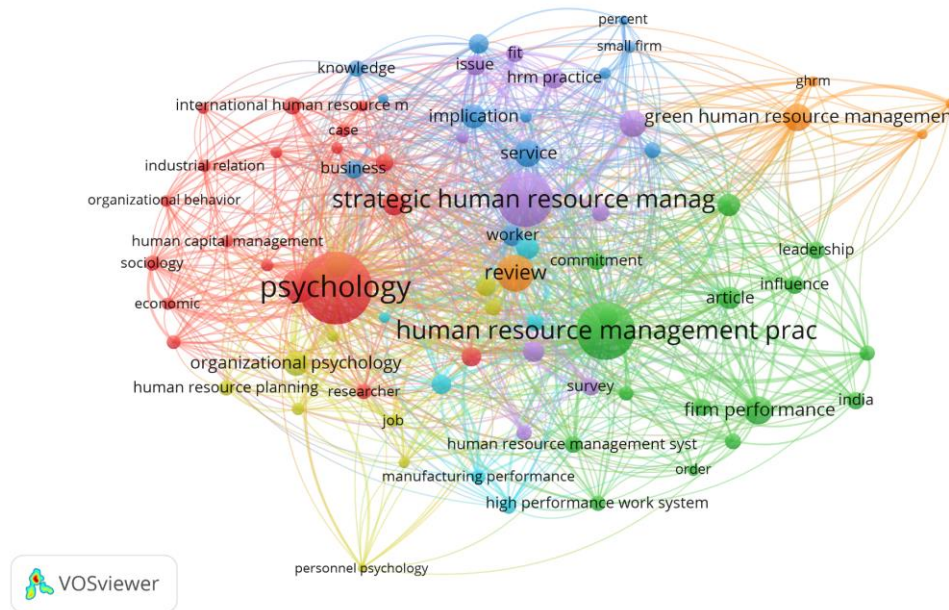


Figure 1. Network Visualization

Source: Data Analysis Result, 2024

The visualization of the network of terms reveals distinct clusters representing various thematic areas within the field of human resource management (HRM) and organizational behavior. The "Red Cluster" encompasses terms such as psychology, strategic, economic, and organizational behavior, indicating a focus on the psychological and strategic aspects of human capital management. This cluster suggests an interest in understanding how psychological factors and strategic approaches influence organizational behavior and economic outcomes. It underscores the importance of considering human capital as a strategic asset and aligning organizational goals with individual motivations and behaviors to enhance overall performance.

In contrast, the "Blue Cluster" centers around implications, services, small firms, and knowledge, suggesting a focus on the

practical implications of HRM practices for small businesses and the role of knowledge management in enhancing organizational performance. The "Green Cluster" focuses on human resource management practices, leadership, commitment, and firm performance, highlighting the importance of effective HRM practices and leadership strategies in fostering organizational commitment and improving firm performance. The presence of clusters such as "Purple" and "Orange" further underscores the significance of specific HRM practices, such as green HRM initiatives, and the fit between HRM practices and organizational goals. Overall, the visualization provides valuable insights into the interconnectedness of various HRM concepts and their implications for organizational behavior and performance.

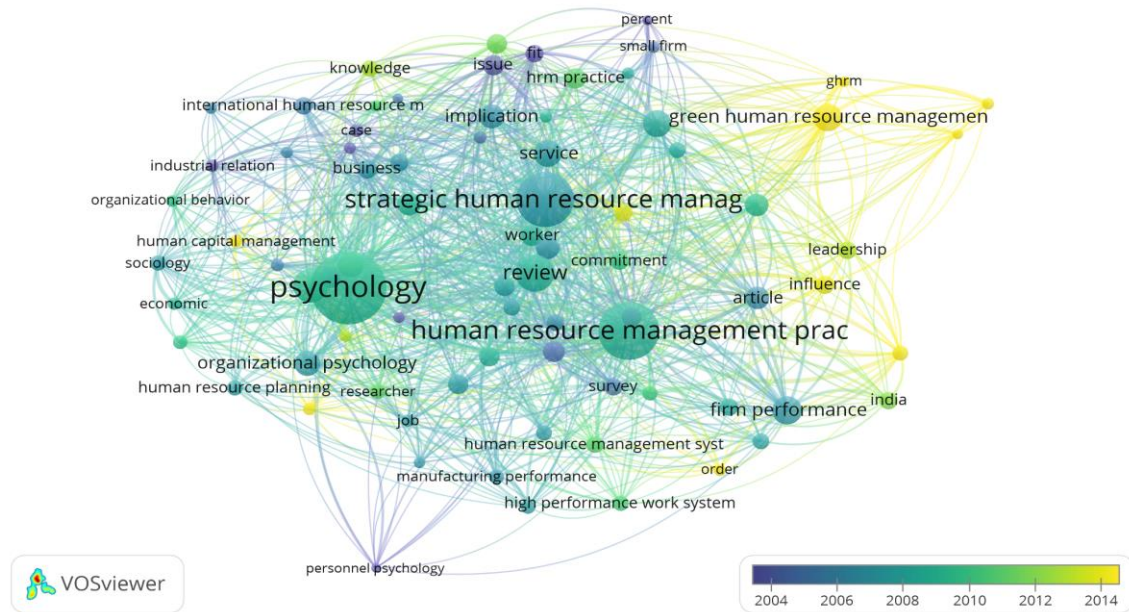


Figure 2. Overlay Visualization

Source: Data Analysis Result, 2024

The overlay visualization of terms across different years provides a temporal perspective on the evolving focus within the field of human resource management (HRM). In 2004, the emphasis appears to be on issues related to small firms and industrial relations, reflecting a concern with the unique challenges and dynamics faced by small businesses in managing their workforce and navigating industrial relations contexts. This suggests a practical orientation towards understanding the HRM needs and strategies of small firms, as well as addressing issues related to labor relations and employment practices within these contexts.

Moving forward to 2006, there is a notable shift towards survey methodologies, personnel psychology, and articles focusing on firm performance. This shift suggests a

methodological turn towards empirical research and survey-based studies to investigate the psychological aspects of HRM practices and their implications for organizational performance. Additionally, the inclusion of terms like personnel psychology and firm performance underscores a growing interest in understanding individual and organizational behavior within the HRM context, highlighting a shift towards evidence-based practices and empirical inquiry in HRM research. Overall, the overlay visualization reveals a progression from exploratory studies on small firm dynamics towards more methodologically rigorous investigations into the psychological and organizational dimensions of HRM practices and their impact on firm performance.

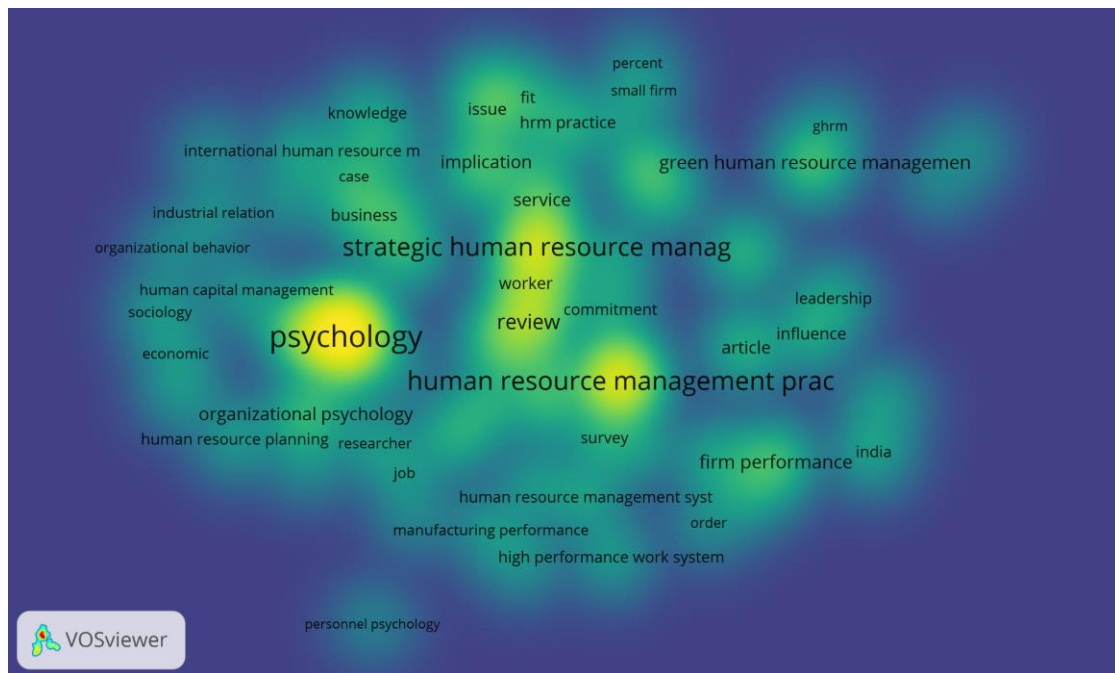


Figure 3. Density Visualization

Source: Data Analysis, 2024

The density visualization highlights the varying levels of research intensity across different terms within the field of human resource management (HRM). The bright area, encompassing terms such as psychology, strategic human resource management, and human resource management practice, indicates a high intensity of research focus. This suggests that these concepts are central to current scholarly inquiry and are receiving significant attention in HRM research. The inclusion of terms like psychology underscores the importance of understanding the psychological aspects of HRM practices and their implications for organizational behavior and performance. Additionally, strategic human resource management and human resource management practice reflect a strategic orientation towards HRM, indicating a focus on aligning HR practices with organizational goals and objectives to enhance overall effectiveness and performance.

Conversely, the less bright area represents terms that receive relatively less research attention within the field. These terms include human capital management, work system, personnel management, job,

industrial relations, and knowledge. While these concepts are still relevant to HRM, their lower intensity suggests that they may be underexplored or receive less emphasis in current research endeavors. Future research directions may involve delving deeper into these areas to uncover new insights, address knowledge gaps, and contribute to a more comprehensive understanding of HRM practices and their impact on organizational outcomes. For instance, further investigation into human capital management could explore strategies for effectively managing and developing an organization's human capital to enhance competitiveness and performance. Similarly, research on work systems, personnel management, and industrial relations could provide valuable insights into organizational practices for optimizing employee engagement, satisfaction, and productivity. Additionally, exploring the role of knowledge management in HRM could shed light on how organizations can leverage knowledge assets to drive innovation, improve decision-making, and foster continuous learning and development. By focusing on these less explored areas, researchers can enrich the

HRM literature and inform evidence-based practices for enhancing organizational effectiveness and performance.

5. CONCLUSION

The bibliometric analysis of the field of human resource management (HRM) reveals a dynamic landscape characterized by diverse thematic clusters and evolving research trends. Central themes such as psychology, strategic human resource management, and HRM practices emerge as focal points of scholarly inquiry, reflecting a strategic orientation towards understanding the psychological dimensions of HRM and aligning practices with organizational goals.

However, there are also areas that receive relatively less research attention, such as human capital management, work systems, and knowledge management, suggesting opportunities for future exploration and knowledge generation. By delving deeper into these underexplored areas, researchers can contribute to a more comprehensive understanding of HRM practices and their impact on organizational outcomes, ultimately informing evidence-based practices for enhancing organizational effectiveness and performance.

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