

Systematic Review

Factors That Impact the Dynamics and Effectiveness of Work Teams during the Implementation of Continuous Improvement Tools in the Manufacturing Industry: A Systematic Literature Review

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Abstract: Currently, because of global competition, companies within the manufacturing industry must implement new organizational and production techniques to compete and stay active. The use of continuous improvement tools has become an opportunity and an effective strategy to achieve this. However, there is evidence that many continuous improvement programs are not successfully implemented due to a lack of information related to human management during the implementation of these projects in the manufacturing industry. In this context, the objective of this research is to identify factors influencing the dynamics and effectiveness of work teams for the implementation and development of continuous improvement tools in the manufacturing industry. A literature review was conducted using the PRISMA method, considering scientific articles related to the main factors that affect the dynamics and effectiveness of work teams in relation to the implementation of continuous improvement tools. From the review and evaluation of the studies, 60 factors were identified that affect the effectiveness of work teams in relation to continuous improvement within the manufacturing industry. Subsequently, a Pareto analysis was conducted on the critical success factors based on the number of occurrences in the analyzed literature, identifying 32 critical success factors considered vital for the implementation of continuous improvement projects. It is concluded that the factors arise from two common elements, the involvement of senior management and the company's own culture. Therefore, to ensure the effectiveness of work teams and their continuous improvement projects, management must focus attention on this cultural change mainly by providing the necessary resources for the development of the project, establishing an adequate and effective reward system, and, most importantly, directing efforts towards staff empowerment.

Keywords: continuous improvement; critical success factors; kaizen; manufacturing industry; teamwork



Citation: Ramírez-Zavala, M.R.; López-Guerrero, A.; Olivares-Fong, L.d.C.; Velázquez-Victorica, K.I.; Montoya-Alcaraz, M. Factors That Impact the Dynamics and Effectiveness of Work Teams during the Implementation of Continuous Improvement Tools in the Manufacturing Industry: A Systematic Literature Review. *Appl. Sci.* **2024**, *14*, 1017. <https://doi.org/10.3390/app14031017>

Academic Editors: Arkadiusz Gola, R.M. Chandima Ratnayake and Martin Krajcovic

Received: 29 November 2023

Revised: 23 December 2023

Accepted: 27 December 2023

Published: 25 January 2024



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1. Introduction

Currently, because of competition within the global market, companies in the manufacturing industry face the challenge of implementing new organizational and production techniques that allow for competitive performance and maintaining activity within this market.

The use of continuous improvement tools has become an opportunity and an effective strategy for companies and industrial organizations to increase productivity and develop manufacturing competencies that impact competitiveness and effectiveness [1].

Similarly, work teams (WT) are one of the most important elements for the development of continuous improvement projects, facilitating the exchange of information. Additionally, gaining contributions and creativity from each team member influences the correct resolution of problems [2].

In accordance with the literature review, the most used concept for evaluating results in work teams is effectiveness [3], which is defined as the reflection of how the achieved results relate to the proposed ones. It is the team's ability to activate resources in pursuit of objectives [1].

In this context, the term critical success factors (CSF), is defined as the identification of all variables (capabilities, resources, competitive advantages, skills, and actions) that characterize an organization and that, if managed appropriately, can be key to achieving project success. With that said, critical success factors express the challenges to be faced and serve as a starting point for leaders of organizations and/or projects to determine which factors have a greater impact on work teams and results. Therefore, it should be considered a priority to achieve the effectiveness of continuous improvement projects [4].

However, there is evidence that many continuous improvement programs are not successfully implemented. In some cases, initial success is achieved, but it becomes impossible to sustain over time or fails to reflect improved financial results for the organization [5]. Stemming from the aforementioned, the objective of this systematic review is to identify critical success factors facilitating effectiveness in work teams for the successful development of continuous improvement projects and the application of corresponding tools in the manufacturing industry. This aim is to provide organizations with insights into human resource management and, concurrently, serve as a guide for future continuous improvement project implementations. Currently, greater emphasis is placed on the analysis of production and quality indices rather than on human resource management.

It is important to note that, before the completion of this article, a preliminary search was conducted on Web of Science and Scopus. In this sense, no current or ongoing systematic reviews specifically related to the manufacturing industry were identified. In a systematic review of contextual factors influencing the success of continuous improvement in healthcare, certain team-related factors were found, among them being leadership, team climate, team process, and physician participation in the quality-improvement team. However, supporting evidence was considered limited [6].

A systematic review of interventions to enhance team effectiveness and identify its level was conducted, identifying three categories of interventions: training, tools, and organizational interventions [7]. Meanwhile, the review [8] focuses on providing guidance on the selection of instruments for measuring team-level factors in studies of continuous quality improvement in healthcare.

This review distinguishes itself from previous reviews by focusing on the effectiveness of work teams in implementing continuous improvement tools within the manufacturing industry, because existing reviews consider teamwork approaches applied to the healthcare field. Additionally, it is essential to note that the information provided in these reviews is based on studies and data from approximately a decade ago. Therefore, this review is considered necessary to provide novel and updated information on factors influencing the effectiveness of work teams in the current context.

As a result of the above, the objective of this review is to identify factors influencing the dynamics and effectiveness of work teams for the proper implementation and development of continuous improvement tools in the manufacturing industry. This will be achieved through a literature review summarizing these critical factors in the effectiveness of work teams.

2. Materials and Methods

The proposed literature review is conducted in accordance with The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration [9]. This method ensures that systematic review and meta-analysis-type articles are transparent and complete, through verification of 27 essential elements for this objective. This method was born from the need to improve the quality of the information reported in systematic reviews. Deriving from this, an international group of experienced authors and methodologists developed the PRISMA

method, which has considerably expanded knowledge about conducting and reporting systematic reviews. In addition to the 27 essential elements, it proposes a flow chart of 4 stages, in which quantities of identified records are shown, as well as excluded and included items. The systematic review was registered in the Open Science Framework registry (<https://osf.io/gq23y>; registered on 16 December 2023).

2.1. Research Question and Objective

What are the primary determinants shaping the dynamics and efficacy of work teams in facilitating the accurate implementation and advancement of continuous improvement tools within the manufacturing industry?

In pursuit of the objective and in response to the posed research question, this review articulates an elucidative framework and theoretical underpinnings concerning the efficacy of work teams. It delves into the nuanced role and profound impact of human resources in the domain of continuous improvement and the implementation of the paramount tools currently wielded within the contemporary manufacturing industry. Subsequently, critical factors ensuring the effectiveness of work teams in utilizing these tools are identified based on the evidence found in the literature review.

2.2. Eligibility Criteria

To select articles that answer the research question, the inclusion and exclusion criteria were those defined in Table 1.

Table 1. Definition of participants and context for inclusion and exclusion criteria.

Category	Inclusion	Exclusion
Participants	Work teams focused on collaboration within projects and the application of continuous improvement tools.	Workgroups (a set of individuals who share information and ideas having neither the same objective and/or common goals nor joint responsibility) [10].
Context	Organizations and companies in the industrial sector (manufacturing and/or production).	Private and public companies related to the field of healthcare.

Own elaboration.

Following the above, work teams focused on collaboration within projects and the application of continuous improvement tools are included as participants, excluding individual work groups. On the other hand, the context is defined exclusively in organizations and companies in the industrial sector. Additional criteria, such as document type, language, database, and period, are explained in the following section.

2.3. Types of Sources and Search Strategy

This literature review incorporates studies and scientific articles, encompassing journals, conferences, and book chapters, exclusively in the English language. This decision stems from the current prominence of English as the internationally predominant language, with the most widely disseminated journals being in this linguistic medium.

The term “systematic reviews” also encompasses those that meet the inclusion criteria and are relevant to addressing the research question. Additionally, articles spanning the years 2010–2022 are included, as the aim is to gather updated information on the subject while simultaneously providing an overview of at least the past decade regarding the evolution of work teams and their effectiveness. This examination focuses on articles related to the primary factors (psychosocial, environmental, and organizational) that impact the dynamics and effectiveness of work teams in relation to the implementation of continuous improvement tools.

A comprehensive exploration was undertaken in the scholarly databases Web of Science and Scopus to discern articles pertaining to the specified subject. These databases

were deliberately selected due to their robust collection of journals dedicated to both social sciences and engineering. The search strategy, meticulously crafted to incorporate all identified keywords and index terms, was individually tailored for each included database or information source. The resulting compilation of references was meticulously scrutinized to unearth the Supplementary Material Studies.

To conduct the search in the selected databases, keywords associated with continuous improvement tools and team effectiveness were employed. The keywords were categorized into three dimensions, as depicted in Table 2.

Table 2. Terms and words related to the search-string dimension.

Dimension	Terms and Related Words
(1) Continuous improvement	Continuous improvement (CI), continuous improvement tools, CQI (continuous quality improvement), Kaizen, quality improvement.
(2) Teamwork	Teamwork, team functioning, work team, organizational behavior, team working, team management, group work, group behavior.
(3) Effectiveness	Effectiveness, effectiveness factors, critical success factors (CSF), performance.

Own elaboration.

Subsequently, the terms were systematically grouped to formulate a search string, employing Boolean operators such as AND and OR, which were then applied across both databases.

The implemented search string was as follows: “(factors OR effectiveness OR success) AND (team AND work) AND (continuous AND improvement OR kaizen OR lean) OR (manufacturing OR industrial)”. Several refinements were introduced, encompassing filters to restrict searches within the domains of engineering, manufacturing, processes, and industry. Furthermore, additional filters, including language and search dates, were incorporated.

2.4. Study Selection

Following the search, all identified citations generated by the search string were compiled and uploaded into the Rayyan tool. This is a web tool that is designed to help researchers working on systematic reviews and other knowledge-synthesis projects, and it also can help to speed up the process of screening and selecting studies [11]. Subsequently, the elimination of duplicates and the exclusion of articles were executed through a swift review of titles and abstracts.

This tool was also employed for the unified management, evaluation, and comprehensive review of information. Potentially relevant sources were retrieved in their entirety, along with specifics of citations.

A thorough examination of the entire content of the chosen citations was conducted in meticulous detail against the established inclusion criteria. Any sources of evidence found in the full text that did not align with the inclusion criteria were systematically excluded, and the rationale behind such exclusions was diligently recorded and reported within the review.

Any uncertainties arising at each stage of the selection process regarding the inclusion of a particular article were resolved through a meticulous review of the comprehensive information encapsulated within the said article.

2.5. Data Extraction

The data from the articles included in the literature review were extracted with the support of the Rayyan tool 2022 and a data-extraction tool developed in Microsoft 365, Excel. The extracted data encompasses specific details regarding the factors and relevant findings identified in each article pertaining to the effectiveness of teamwork, thereby facilitating

the response to the research question. Additionally, contextual details surrounding the research settings, participants, and study methods employed were also extracted.

3. Results

3.1. Encompassed Studies

The execution of the search and selection process for studies took place in October of the year 2022, resulting in the curation of a total of 20 articles incorporated in the current review. The outcomes of the search and the study inclusion process are comprehensively detailed and visually depicted in a flowchart (see Figure 1).

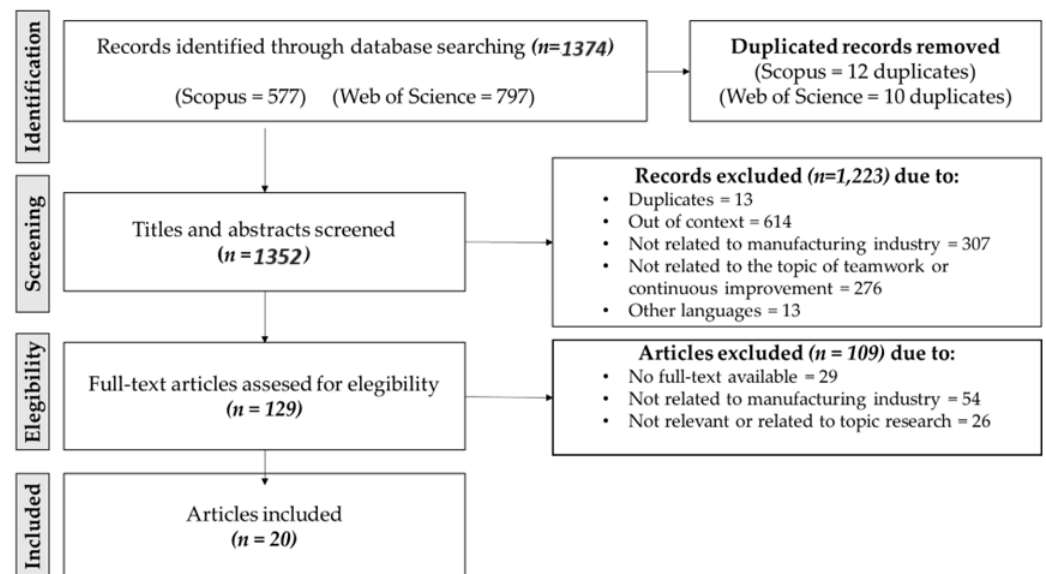


Figure 1. Flowchart of the preliminary study selection process. Self-created based on PRISMA-ScR [9].

The flowchart consists of four stages, with the first being the identification stage, wherein the researcher consolidated the results obtained from searches in both the Scopus and Web of Science databases. A total of 1374 records were retrieved through these searches.

In the second stage, screening, duplicate results found in both databases were eliminated (22 articles). Additionally, a quick review of titles and abstracts of the retrieved articles was conducted, identifying 1223 studies that did not meet the inclusion criteria and were therefore excluded.

The third phase, eligibility, involves a thorough analysis of the 129 articles selected for further scrutiny in a full-text review. This is aimed at discerning which of these articles genuinely meet the inclusion criteria and provide pertinent information for the systematic review.

Finally, the included stage encompasses all studies that have adhered to the eligibility criteria and are deemed germane to the systematic review.

3.2. Characteristics of the Studies

In Figure 2, the graphical representation illustrates the number of articles chosen for comprehensive text review per year. Broadly speaking, an ascending trend is discernible in studies focused on critical success factors for continuous improvement over the years. It is worth highlighting that, in the latest period starting from 2019, there is a sustained upswing in investigations related to this thematic domain (66 articles from 2019 to 2022).

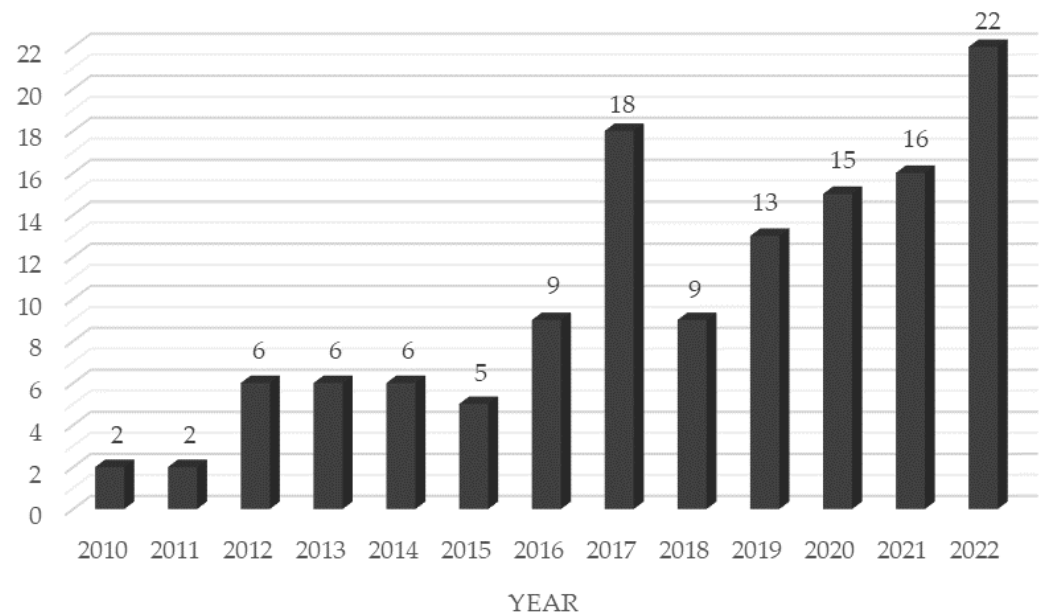


Figure 2. Number of articles retrieved per year. Own elaboration.

Likewise, Figure 3 illustrates the publication categories of the retrieved articles, predominantly comprising journal articles (89%), with the remaining 11% attributed to conference proceedings.

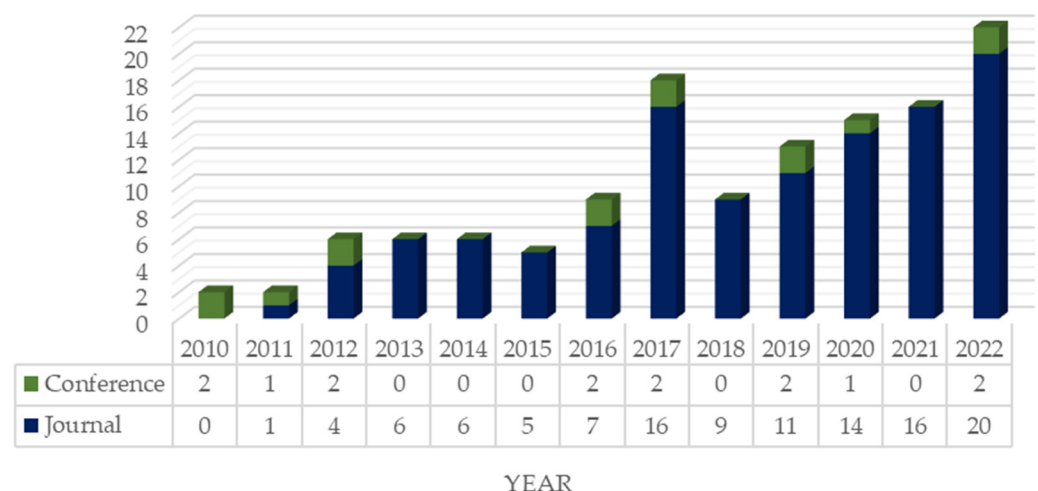


Figure 3. Publication type of the retrieved articles by year. Own elaboration.

Furthermore, the studies selected for the analysis in this literature review ($n = 20$) were categorized by database and publication type.

As for the database, Figure 4 illustrates that 11 studies (55%) were retrieved from the Web of Science database, and 9 studies (45%) from Scopus.

Similarly, in Figure 4, it is observed that the studies included in the analysis were almost entirely (95%) published in journals, while only 5% were conference proceedings.

To identify the main areas of interest to which the selected articles belong after the screening procedure, as well as the connections between the concepts related to the research topic, a mapping of the bibliographic information was carried out with the support of VOSviewer software version 1.6.20 URL <https://www.vosviewer.com> (accessed on 21 December 2023). This software is a tool used to analyze and visualize literature through bibliometric networks using bibliographic information from scientific articles. Figure 5 presents the analysis of the applications with VOSviewer.

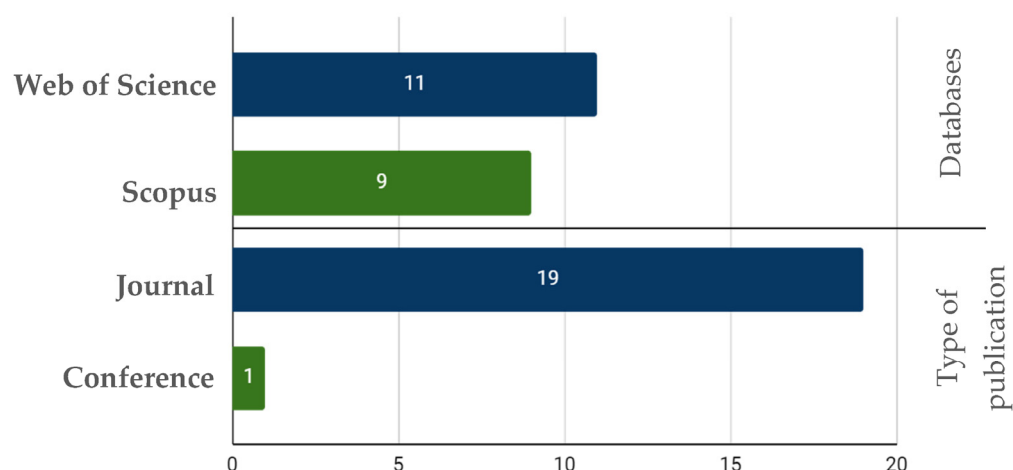


Figure 4. Databases and publication types of the articles included in the review. Own elaboration.

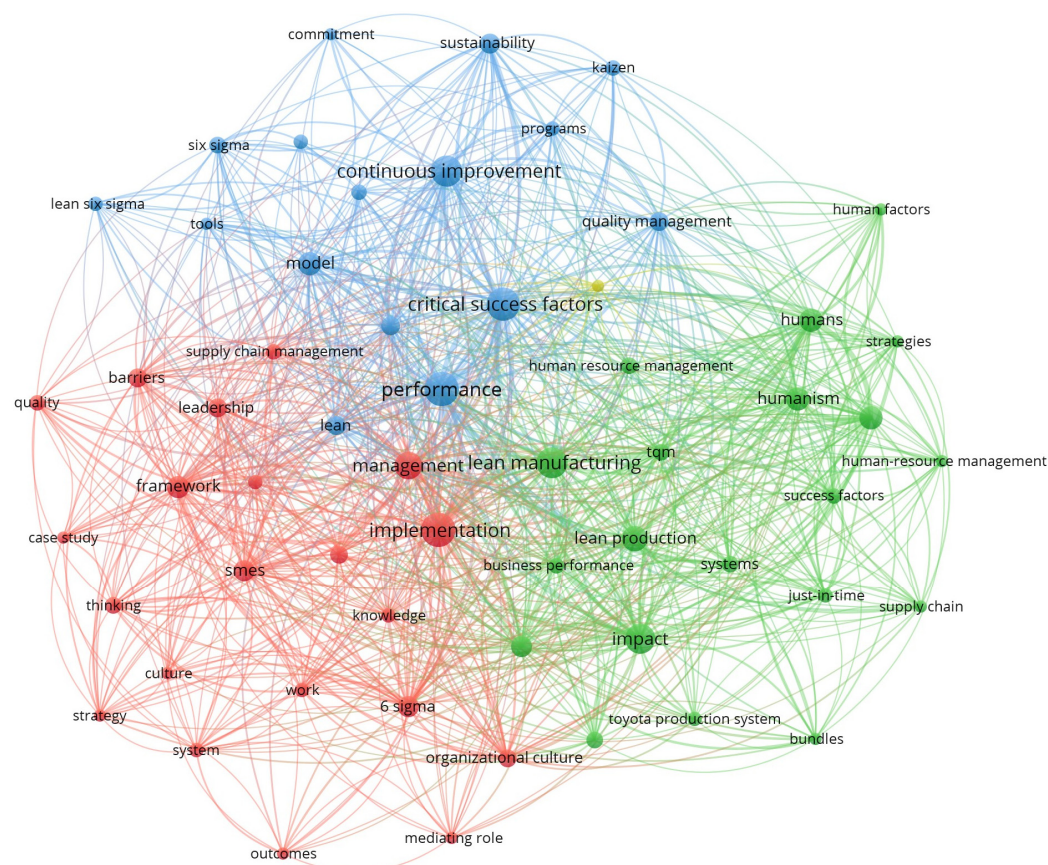


Figure 5. Analysis of the selected publications after screening, with at least 5 matches. Own elaboration.

In Figure 5, it is observed that the map is mainly composed of three clusters, performance, implementation, and lean manufacturing, which means that these themes or keywords have been investigated much more among the analyzed articles.

Due to its central position within the map, and the size of the node, we can affirm that the word with the greatest connection with respect to the other themes is the word performance.

In turn, the blue cluster is the strongest, since it includes the largest nodes (performance, critical success factors (CSF), and continuous improvement), which confirms that the selected studies are quite related to the research topic since this literature review focuses

on identifying these CSFs that intervene in the performance of work teams (green cluster) in relation to continuous improvement.

The information for the 20 selected studies for analysis is presented in Table 3, displaying the title, author, year, reference, and country for each article.

Table 3. Bibliographic information of the articles included in the review.

No.	Author and Year	Publication	Reference	Country
1	(Jaca et al., 2013)	Teamwork effectiveness factors in healthcare and manufacturing industries	[12]	Spain
2	(Yang and Yang, 2013)	An Integrated Model of the Toyota Production System with Total Quality Management and People Factors	[13]	Taiwan
3	(Sterling and Boxall, 2013)	Lean production, employee learning and workplace outcomes: a case analysis through the ability-motivation-opportunity framework	[14]	New Zealand
4	(García et al., 2013)	Critical success factors for Kaizen implementation in manufacturing industries in Mexico	[15]	Mexico
5	(Garcia et al., 2014)	Human critical success factors for kaizen and its impacts in industrial performance	[16]	Mexico
6	(Lam et al., 2015)	Achieving employee commitment for continuous improvement initiatives	[17]	United States of America
7	(Meneses and Navarro, 2015)	How to improve team effectiveness through group processes: An example in the automotive industry	[18]	Spain
8	(Salas et al., 2015)	Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide	[19]	United States of America
9	(Oropesa-Vento et al., 2015)	Effects of management commitment and organization of work teams on the benefits of kaizen: Planning stage	[20]	Mexico
10	(H. van Dun and Wilderom, 2016)	Lean-team effectiveness through leader values and members' informing	[21]	Netherlands
11	(Alhuraish et al., 2017)	A comparative exploration of lean manufacturing and six sigma in terms of their critical success factors	[22]	France
12	(NG and Ghobakhloo, 2017)	What derives lean manufacturing effectiveness: An interpretive structural mode	[23]	Malaysia
13	(Alvarado-Ramírez et al., 2018)	Kaizen, a continuous improvement practice in organizations	[24]	Mexico
14	(Costa et al., 2019)	How to foster Sustainable Continuous Improvement: A cause-effect relations map of Lean soft practices	[25]	Italy
15	(A. and B., 2020)	Factors Affecting Teamwork Effectiveness in Malaysian SMEs: Construction Industry.	[26]	Malaysia
16	(Yuik et al., 2020)	Exploring critical success factors for the implementation of lean manufacturing in machinery and equipment SMEs	[27]	Malaysia
17	(Paipa-Galeano et al., 2020)	Key Lessons to Sustain Continuous Improvement: A Case Study of Four Companies	[28]	Colombia
18	(Tortorella et al., 2021)	Influence of team members' characteristics on the sustainability of continuous improvement initiatives	[29]	Brazil
19	(Petkova et al., 2021)	Let's be frank: Individual and team-level predictors of improvement in student teamwork effectiveness following peer-evaluation feedback	[30]	United States of America
20	(Alvarez et al., 2021)	Six Sigma Projects Work Teams: A Literature Review of the Factors Influencing Their Effectiveness	[31]	Mexico

Own elaboration.

3.3. Data Analysis

3.3.1. Critical Success Factors (CSF) Found in the Literature

Following the review and assessment of the studies, 60 factors influencing the effectiveness of work teams concerning continuous improvement within the manufacturing industry were identified and are presented in Table 4.

Table 4. CSF for the effectiveness of WT in continuous improvement projects found in the literature.

Critical Success Factors (CSF)		References																				Total Citations
		[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	
1	Objectives and common goals	✓			✓		✓	✓	✓				✓	✓							✓	8
2	Shared values (respect, companionship, humility)						✓		✓			✓					✓					4
3	Standards/Rules/Policies/Procedures	✓					✓						✓	✓	✓						✓	6
4	Team size						✓					✓										2
5	Role assignment and assigned tasks	✓			✓	✓	✓	✓	✓													6
6	Organizational structure	✓						✓		✓			✓								✓	5
7	Human and inter-multi-professional complementation/Cohesion	✓			✓	✓			✓								✓			✓		6
8	Communication	✓			✓		✓	✓			✓	✓	✓		✓	✓				✓	✓	11
9	Sense of belonging to the team or organization			✓																		1
10	Problem-solving	✓			✓													✓				3
11	Conflict management/ability to overcome (interpersonal)	✓				✓	✓						✓									3
12	Knowledge, skills, and abilities (KSA)	✓				✓	✓				✓		✓			✓		✓	✓	✓	✓	10
13	Task design					✓																1
14	Team power			✓																		1
15	Information (technology, systems, or information means)	✓	✓					✓				✓							✓	✓		6
16	Reward and recognition system	✓	✓		✓			✓						✓		✓	✓			✓		8
17	Training/Coaching						✓						✓				✓				✓	4
18	Resources (time, technological, economic, etc.)	✓						✓			✓		✓	✓	✓			✓	✓		✓	9
19	Planning/Strategies (Ability to establish and control action plans)	✓					✓	✓			✓											4
20	Decision-making	✓			✓			✓		✓								✓		✓		6
21	Leadership (Ability to direct and motivate)	✓			✓		✓	✓			✓		✓	✓	✓			✓	✓	✓	✓	12
22	Safety (compliance with safety and protection standards)							✓									✓					2
23	Heterogeneity of members (individual characteristics aligned with team composition)												✓		✓						✓	3
24	Diversity (gender, age, culture, personality, tenure)	✓										✓										2
25	Commitment	✓						✓					✓		✓					✓	✓	6
26	Interdependence	✓				✓																2
27	Autonomy	✓			✓							✓					✓					4
28	Learning/development/training/continuous learning	✓						✓			✓			✓		✓				✓		6
29	Openness or transparency environment/service climate	✓					✓										✓			✓		4
30	External environment (customers, suppliers, external pressures)	✓						✓			✓											3
31	Member participation and empowerment	✓				✓		✓			✓			✓		✓	✓	✓	✓			9

Table 4. Cont.

Critical Success Factors (CSF)		References																				Total Citations
		[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	
32	Collaboration/cooperation within the team	✓	✓		✓		✓	✓				✓	✓								✓	8
33	Coordination	✓					✓											✓				3
34	Feedback of results	✓						✓				✓										3
35	Trust among members	✓																		✓		2
36	Motivation	✓	✓					✓					✓				✓				✓	6
37	Common mental models/models of effectiveness	✓																				1
38	Indicators and results reports							✓						✓								2
39	Methodology that supports continuous improvement							✓			✓		✓	✓		✓					✓	6
40	Responsibility											✓					✓					2
41	Cognition						✓											✓				1
42	Participation and commitment from senior management and/or management							✓		✓	✓		✓	✓		✓		✓	✓	✓	✓	10
43	Cultural Change/linking benefits to the organization							✓		✓	✓		✓		✓	✓	✓			✓	✓	9
44	Results-oriented/achievement of results							✓	✓													2
45	Employee evaluation system/performance management							✓				✓	✓	✓	✓					✓	✓	7
46	Documentation of success cases							✓														1
47	Uniform language and terminology							✓														1
48	Data analysis system and statistical methods							✓														1
49	Project management skills							✓			✓					✓				✓		4
50	Innovation							✓									✓					2
51	Team organization									✓				✓	✓			✓	✓	✓		6
52	Customer-oriented										✓	✓					✓					3
53	Behavior and attitude of team members											✓	✓								✓	3
54	Support teams of consultants/facilitators										✓		✓		✓					✓	✓	5
55	Standardization and measurement of processes												✓				✓				✓	3
56	Experience															✓						1
57	Authority																✓					1
58	Quality and culture system																✓			✓		2
59	Resistance to change																			✓		1
60	Bottom-up vs. top-down approach																			✓		1
TOTAL PER PUBLICATION		29	4	2	10	7	15	29	5	5	14	12	19	12	10	9	13	10	7	17	19	

Own elaboration.

Table 4 shows all the factors that had at least one mention within the publications included in the review, the number of mentions observed, and the publications in which each of the listed factors were found.

Among the 60 factors identified, those that obtained the most mentions were leadership (12 mentions), communication (11 mentions), KSA (10 mentions), and participation from senior management (10 mentions).

3.3.2. Pareto Analysis for CSF

The Pareto diagram is distinguished for its ability to assist in prioritizing and reducing factors that require greater attention to achieve desired objectives. This diagram is based on the 80/20 rule, which holds that 80% of problems stem from 20% of the causes, indicating that efforts can be focused on a few fundamental root causes of problems [32].

In the current review, a Pareto analysis was conducted (see Figure 6) on the critical success factors based on the frequency of occurrence in the analyzed literature. For this review, derived from the Pareto diagram, it would be stated that the factors that represent 80% of the citations within the articles included in this review should be considered as those CFSs that affect the dynamics and effectiveness of the teams working during the implementation of continuous improvement tools within the manufacturing industry.

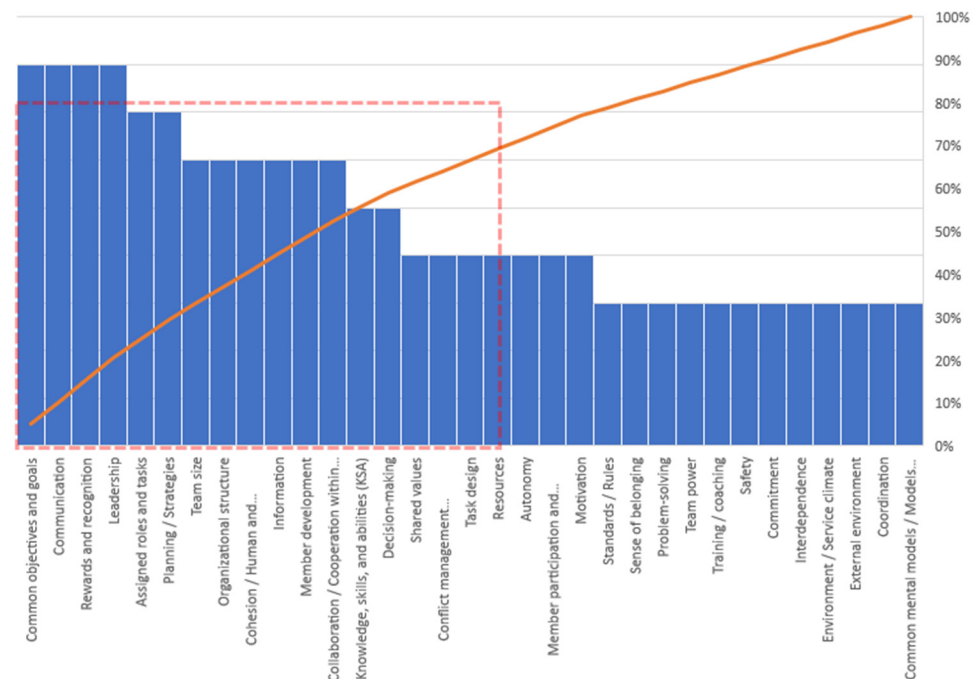


Figure 6. Pareto chart on the CSF for the effectiveness of WT in continuous improvement projects. Own elaboration.

From the Pareto analysis, 32 critical success factors were identified, which are deemed crucial for achieving the effectiveness of work teams in implementing continuous improvement projects. Table 5 provides a summary of the 32 factors that were identified and tabulated. These 32 CFS represent 80% of the total citations within the reviewed literature, which indicates that they must be prioritized to achieve the effectiveness of work teams. It is evident that, among the most crucial factors, leadership and communication stand out, along with the knowledge, skills, and abilities of the team members.

Table 5. Summary of the 32 CSFs identified through Pareto analysis.

	Critical Success Factors (CSF)	References	Total Citations
1	Leadership	[12,14,17,18,21,23–25,28–31]	12
2	Communication	[12,14,17,18,21–23,25,26,30,31]	11
3	Knowledge, skills, and abilities	[12,16,17,21,23,26,28–31]	10
4	Senior-management participation and commitment	[18,20,21,23,24,26,28–31]	10
5	Resources (time, technological, and economic)	[12,18,21,23–25,28,29,31]	9
6	Participation and empowerment	[12,16,18,21,24,26–29]	9
7	Cultural change	[18,20,21,23,25–27,30,31]	9
8	Common objectives and goals	[12,14,17–19,23,24,31]	8
9	Reward and recognition system	[12–14,18,24,26,27,30]	8
10	Collaboration/Cooperation	[12–14,17,18,22,23,31]	8
11	Performance/Management evaluation system	[18,22–25,30,31]	7
12	Standards/Rules/Policies/Procedures	[12,17,23–25,31]	6
13	Role assignment and assigned tasks	[12,14,16–19]	6
14	Human complementarity and multifunctionality	[12,14,16,19,27,30]	6
15	Technology, systems, or information means	[12,13,18,22,29,30]	6
16	Decision making	[12,14,18,20,28,30]	6
17	Commitment	[12,18,23,25,30,31]	6
18	Learning/Development/Training	[12,18,21,24,26,30]	6
19	Motivation	[12,13,18,23,27,31]	6
20	Methodology that provides support to CI	[18,21,23,24,26,31]	6
21	Team organization	[20,24,25,28–30]	6
22	Organizational structure	[12,18,20,23,31]	5
23	Support Teams of Consultants/Facilitators	[21,23,25,30,31]	5
24	Shared values	[17,19,22,27]	4
25	Training/coaching	[17,23,27,31]	4
26	Planning/Strategies	[12,17,18,21]	4
27	Autonomy	[12,14,22,27]	4
28	Work environment	[12,17,27,30]	4
29	Project-management skills	[18,21,26,30]	4
30	Problem solving	[12,14,28]	3
31	Conflict management (interpersonal)	[12,16,17]	3
32	Heterogeneity of members	[23,25,31]	3

Own elaboration.

3.3.3. Classification of CSF through Inductive Analysis

Inductive analysis allows for approaches based on the observation of specific data towards the generation of theoretical frameworks. In other words, through the literature review process and the observations found therein, patterns are identified with the aim of drawing conclusions or theories on the research topic [33].

As a result of this, the present review involved the classification of CSF found in the literature through inductive analysis. Those 32 CSFs identified were grouped into three categories based on their characteristics, similarities, and connections. The categories and corresponding CSFs are presented in Table 6.

Table 6. Classification of CSFs for the effectiveness of WT in the implementation of CI projects.

Category	Description	Variables/CSF
Psychosocial Factors	These represent the behavioral aspects of individuals within the organization, encompassing both plant-level employees and top-tier management and executives. These behavioral factors influence how individuals interact with other team members, as well as with the organization and the environment, particularly in evolving contexts that demand mental flexibility and commitment, as continuous improvement does. Similarly, this category also considers broader cultural aspects at the organizational level, pertaining to values, standards, and behaviors that characterize the actions of all individuals.	1, 6, 7, 10, 17, 19, 24, 27, 31
Technical Factors	These factors encompass the technical expertise in continuous improvement held by all members of the organization.	3, 14, 15, 18, 20, 21, 23, 25, 29, 30, 32
Administrative Factors	These factors involve external aspects that influence how the process of introducing continuous improvement and cultural change within the organization is implemented. These are variables easily controlled by management and senior leadership, including those related to organization and coordination.	2, 4, 5, 8, 9, 11, 12, 13, 16, 22, 26, 28

Own elaboration.

The first category is psychosocial factors, which tells us that for those CSFs that depend directly on people as individuals, their leadership, empowerment, and culture should be considered. Likewise, this category includes the cooperation, motivation, and commitment of team members.

The second category includes the technical factors, which includes variables such as the knowledge, skills, and abilities of the people, as well as the multifunctionality of the team and the training and development that each of the members has had.

The last category tells us about the administrative factors, which often depend largely on the company. These CSFs include communication, the resources provided by the organization, management commitment, and reward and recognition systems for employees.

4. Discussion

Throughout history, human beings have been characterized as social beings, with teamwork being an important part of their nature, thus highlighting the basic need of human beings to establish relationships that range from interpersonal ties to links established to achieve shared objectives in a work team. In this sense, various authors have pointed out that teamwork must be studied scientifically, according to Driskell [34]. There are four main reasons why teamwork should be studied scientifically: teams are present everywhere, they mobilize powerful forces that produce important effects, these forces can impact both positively and negatively, and understanding team dynamics of work allows us to guarantee positive results. This is why work teams are studied since they are considered basic components to perform tasks in various applied contexts, in the military, space development, health care, sports, industry, and other domains.

Also, teamwork is not a work dynamic that has recently emerged within industrial organizations. On the contrary, research from previous decades mentions that work teams were already gaining great popularity within companies. However, it was difficult for organizations to work in work groups, since they tended to obtain negative or unsatisfactory results, low productivity, and conflicts between workers. Therefore, models and literature reviews are beginning to be proposed that help enhance the results of the work team, increasing the productivity of companies and employee satisfaction [35]. In that order of ideas, Jaca [36] mentions that the importance of teamwork is increasingly greater, not only

from the point of view of its results in the organization but above all about the team itself and its members.

That said, the CSFs for the effectiveness of work teams in continuous improvement projects are not only those related to the individual or psychosocial factors of each of the members, but it is equally important to take into account those CSFs related to the administrative and technical aspects, as seen in Figure 7. These 32 factors stem from the analysis of the Pareto diagram (Figure 5), which aids in prioritizing and visualizing the factors that should be considered critical, as the success or failure of continuous improvement projects significantly depends on them. Hence, these factors should receive the utmost attention from organizations.

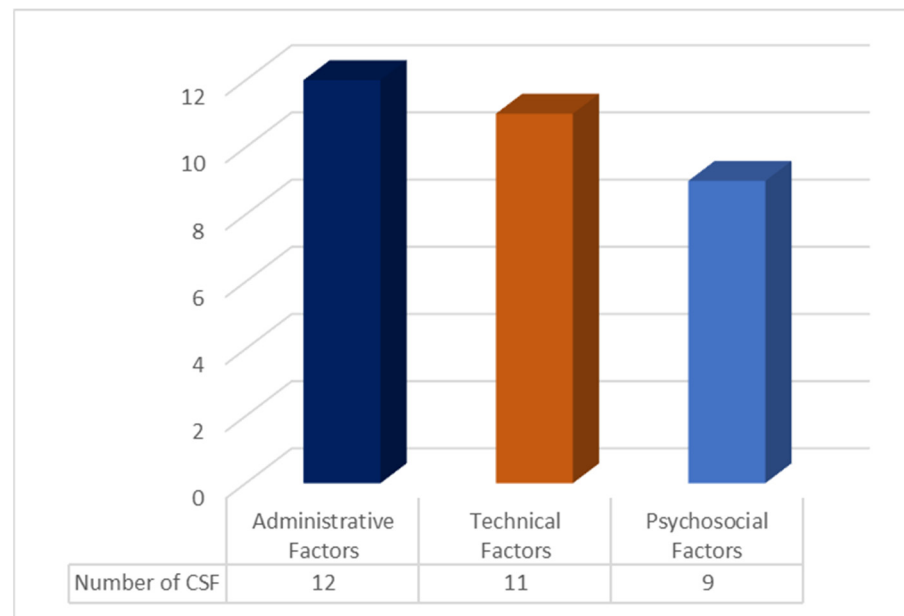


Figure 7. Comparative chart of CSF classification for the effectiveness of TW. Own elaboration.

Among the administrative factors, notable elements include organizational communication, the involvement and commitment of senior management, resources (time, technological, and economic), common objectives and goals, reward and recognition system, performance and evaluation management, policies and procedures, and the assignment of roles and tasks.

Regarding technical factors, the most crucial ones include knowledge, skills, and abilities; human complementarity and multifunctionality; information technology; training; and support teams and consultants.

Finally, among the paramount psychosocial factors are leadership, member participation and empowerment, collaborative cooperation, shared values, and interpersonal conflict management.

After analyzing the studies obtained through the literature search and review process, it becomes evident that the CSFs of work teams play a crucial role in the success and development of continuous improvement projects. Despite the proven benefits that the use of continuous improvement tools can bring to organizations, it has been demonstrated that not all projects are successfully concluded [5]. The above is consistent with the results of various investigations analyzed by Bagherian et al. [37]. For example, in the UK, it was shown that less than 10% of the organizations were successfully implementing the Lean approach. Similarly, the application of a survey to the aerospace sector in 2005 was reported, the results of which showed low satisfaction (less than 50%) with the results of the implementation of Six Sigma. However, it is worth highlighting that the success or failure of projects depends on how they are implemented, so the existing dissatisfaction is due to a lack of attention to the critical success factors that affect their implementation and

not to a shortage of continuous improvement programs [38]. Typically, the development of these projects requires the utilization of resources (financial, operational, time, and effort). Therefore, if not executed properly, it can result in losses for organizations.

From this standpoint, Figure 2 demonstrates a noticeable increase in studies on critical success factors for continuous improvement in recent years. This upward trend directly corresponds to heightened organizational awareness in human resource management and a vested interest in influencing work teams to achieve the goals and objectives of continuous improvement projects and, by extension, those of the organization.

In this sense, Ruiz-Torres et al. [39] highlight that organizations based on team structures are those that currently achieve high levels of quality, which are essential to compete in the global market. Likewise, these organizations not only achieve the fulfillment of their objectives as a company but also manage to satisfy the needs of their staff. Rojas Salazar and Perez Olguin [40] analyzed the contribution that the define measure analyze improve control (DMAIC) continuous improvement methodology has had and its application in some companies in the food industry in different Latin American countries. The authors showed that this methodology has helped strengthen this industrial sector, and they highlight Mexico as the country that has made the most publications on the application of continuous improvement tools and their benefits within organizations.

On the other hand, the study conducted by Chávez et al. [41], analyzes the proposal and implementation of a process improvement within an industrial company, identifying the activities that did not generate value, to reduce or eliminate waste with Kaizen continuous improvement tools, five's, and VSM. As a result, an increase in product performance to 89% and an increase in efficiency to 72% was obtained, demonstrating that it is possible to reduce time and raw-material waste without the need to automate the process. In this sense, in his study, Molina Rueda [42] demonstrated that continuous improvement tools and the application of the Lean Manufacturing philosophy positively impact the quality of products and services, obtaining a 24.3% increase in productive time and 29.22% in activities that add value, as well as a decrease of 8.34% in delivery time to customers.

It is noteworthy that, in the current literature, there is a more prevalent focus on research concerning continuous improvement and team-based approaches in the healthcare sector. In contrast, research is scarce, with a focus on the effectiveness of work teams in implementing continuous improvement tools, within the manufacturing industry.

Having a comprehensive understanding of the pivotal factors to consider within work teams during the implementation of continuous improvement tools not only mitigates the risk of project failure but also represents a means of optimizing both resources and efforts.

5. Conclusions

As a result of this investigation, it is evident that many of the factors stem from two common elements: the involvement of senior management and the company's culture itself. Therefore, to ensure the effectiveness of work teams and their continuous improvement projects, management must focus attention on this cultural shift. This involves providing the necessary resources for project development, establishing an appropriate and effective reward system, and, most importantly, directing efforts toward empowering personnel. This includes fostering leadership, promoting communication, and actively participating in the training and development of each member of the organization.

Additionally, a generational change is observed in what people want from a reward and recognition system since people currently appreciate and value non-monetary intangible elements, such as learning and development, quality of work life, and life balance. Therefore, organizations should choose to establish an adequate and successful reward system, since it has been shown that it is a means of motivation and positively influences the performance and results of work teams [43]. This systematic review allowed us to obtain the following findings:

- Thirty-two critical success factors (CSF) were identified for the effectiveness of work teams in continuous improvement projects;

- It allows organizations to identify areas of opportunity in the management of personnel and collaborative work teams in relation to the development and implementation of projects;
- It facilitates decision making in terms of prioritizing efforts and enhancing your human resources;
- The knowledge generated from this literature review can lead to statistical research that presents instruments and/or models;
- The methodology used is explained clearly, which allows it to be replicated to improve the literature on this topic.

Some of the limitations of this article are that the literature review carried out allowed us to identify the factors that affect the dynamics and effectiveness of work teams during the implementation of continuous improvement tools within the manufacturing industry. Therefore, the results are presented descriptively, and a detailed statistical analysis is not included. On the other hand, although an exhaustive bibliographic search is attempted, relevant references on the topic may not be included. This may be due to database limitations, language barriers, or difficulties accessing certain types of literature, such as unpublished reports or ongoing studies. However, a precedent is left for future research that is relevant to the scientific and industrial community.

In this regard, it is advisable to continue with research in this area, as it could constitute a significant contribution to the scientific field and various areas of knowledge, particularly in the industrial and organizational context.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/app14031017/s1>. References [10,24,30,31,44–51] are cited in Supplementary Materials part.

Author Contributions: Conceptualization, M.R.R.-Z., A.L.-G. and K.I.V.-V.; Methodology, A.L.-G. and L.d.C.O.-F.; Formal analysis, M.R.R.-Z.; Investigation, M.R.R.-Z., L.d.C.O.-F., K.I.V.-V. and M.M.-A.; Writing—original draft, M.R.R.-Z.; Writing—review and editing, L.d.C.O.-F., K.I.V.-V. and M.M.-A.; Supervision, A.L.-G. and M.M.-A.; Project administration, A.L.-G. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflicts of interest.

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