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Dissertation submitted in partial fulfilment of the requirement for the Master's
Degree in field of English Language and Literature

Specialty: Linguistics

**Genre-Based Analysis of English Cardiology
Research Articles : A Comparative Study of Native and Non-Native Writers**

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Academic Year:

2025 - 2026

Dedications

To my darling mother,

There are no words strong enough to say how grateful I am for all you have done for me. Behind every step I took, every challenge I overcame, every success I achieved, there was always your love, your sacrifice, and your unwavering faith in me.

You were my strength when I was weak, my hope when I doubted, my light in the darkest of times on this journey. Your prayers carried me everywhere, protected me, guided me, and gave me the courage to continue when the road became difficult.

Thank you for every sleepless night, every silent sacrifice, every word of encouragement, and every tear you held back so I could keep going. You carried my dreams in your heart long before I could believe in them in my own.

Nothing I do in this life will ever be able to repay even a fraction of what you have given me. This dissertation is not merely a product of academic work, it is a reflection of your patience, your unconditional love and the endless support that surrounded me every single day.

This modest work is dedicated to you, my mother. It is but a small token of the love, the pride, and the respect my heart can hold.

May you always be the greatest blessing in my life.

Acknowledgements

First and foremost, I am deeply grateful to Almighty ALLAH for giving me strength, patience and guidance to undertake this research. All this is not possible without the blessing and mercy of ALLAH.

I would like to express my sincere gratitude to my supervisor, Mr. Youcef Benchikh, for his continuous support, valuable insights and thoughtful guidance throughout the course of this study. His mentorship, scholarly knowledge and constructive criticism have been instrumental for the development of this work.

I would also like to thank Professor Belarbi for his very good help, professionalism and valuable suggestions which have significantly improved this dissertation.

Also, I want to thank wholeheartedly Professor Benzokh, Professor chaouki, Dr. Doufen, Dr. Saighi, Dr. Guendoz, Professor Drid, Professor Sayeh Elmbarak and Dr. Seddiki for their support, encouragement and inspirational academic guidance throughout this journey.

I would like to express my sincere appreciation to the faculty and staff of the English Department for their efforts and contributions, which created a stimulating and enriching academic environment during my years of study.

I would like to thank the teachers' team for their help and cooperation all through my years of study, and the jury members for reading, assessing and editing this work.

Finally, I am very thankful to my colleagues, friends and all those who have supported me morally and academically during this journey. I am always really grateful for their support and company.

Abstract

In this study, the characteristics of academic discourse in terms of rhetoric and pragmatics have been examined in research articles in cardiology written by native and non-native speakers of English. The present study adopts a critical approach towards academic writing through an analysis of the concepts of genre analysis, contrastive rhetoric, and stance and engagement. A comparative corpus-based approach is used in this study to analyze twenty articles published in cardiology journals written by both native and non-native speakers equally. Quantitative and qualitative approaches are utilized to explore rhetorical devices used in Discussion sections and persuasive devices used in Results sections, namely hedging, boosting, quantification, and comparison. The results indicate that while the two groups of writers adhere to traditional structure of research articles, native writers have a recursive and interactional writing approach through which they combine different rhetorical functions in one text unit. On the other hand, non-native writers apply a more linear and explicit approach to writing, which helps them be more coherent but less rhetorically complex. As for persuasion, while native writers make use of different persuasive strategies including numerical data, evaluation, and interaction, non-native writers use more quantification and explicit structuring. According to the study, these disparities arise from different rhetorical approaches due to their linguistic and educational background and not because of poor writing skills. The study emphasizes the need for ESP teaching which encourages rhetorical flexibility and persuasion in writing.

Keywords: Academic Discourse; Genre Analysis; Cardiology Research Articles; Rhetorical Structure; Persuasive Markers; Corpus-Based Analysis; Native and Non-Native Writers.

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List of Abbreviations

ESP	English For Specific Purposes
IMRD	Introduction,Methods,Results,And Discusion
L1	First Language
L2	Second Language
RA	Research Article
RAs	Research Articles
NS	Native Speaker
NNS	Non-Native Speaker

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General Introduction

1. Background Of The Study

Academic writing, which has been studied for the past few decades, has shifted dramatically in concept. Instead of looking at academic writing as a simple means to communicate knowledge, academics now see it as a rhetorical practice with a social, rhetorical, and epistemic aspect attached to it. In this paradigm, the construction of knowledge takes precedence over mere communication, since authors choose what information to use and how to present it.

The research article constitutes the genre par excellence when it comes to dissemination of knowledge in the scientific realm, especially in highly specialized branches of medicine like cardiology. While the organizational format of IMRaD (Introduction, Methods, Results, and Discussion) may be said to provide a set structure for knowledge construction, this does not capture the rhetoric involved in each section and its specific function within the article. It is important to remember that the supposedly objective language used in science actually involves a complex web of negotiations in writing.

Advances in genre analysis and academic discourse analysis in recent years have brought into question the long-held binary divide between "objective reporting" and "persuasive argument," with new research indicating that even those portions of a paper typically considered to be descriptive in nature, like the Results section, have an inherent evaluative role. By employing linguistic resources such as hedging, boosting, quantifying, and comparative frames, the writer is able not just to present data, but to direct interpretation and significance.

Globalization in the publication process of scholarly knowledge has made things even more complex. The dominance of English as the global language in the realm of science makes room for more foreign-language speakers who produce academic knowledge. Although these writers are quite familiar with conventional ways of doing things in academia, the epistemology that drives their rhetoric might be entirely different. Therefore, differences in scholarly writing should not always be seen as the result of inadequate use of language but as preference for different types of rhetoric.

The problem takes on special significance in high-stakes fields like cardiology, in which the manner of conveying research results can have profound practical repercussions in terms of actual medical practice, public policy formulation, and patient care. In this setting, not only style but also an epistemological imperative informs effective academic discourse, since the manner in which knowledge is framed may affect its comprehension and reception.

2. Statement of the problem

However, despite the amount of scholarly effort devoted to academic discourse, genre analysis, and contrastive rhetoric, there are still certain important gaps. First of all, the majority of works on this topic tend to emphasize the macro-structural aspects of research papers while ignoring dynamic processes involved in their realization in real speech. In other words, the complexity of academic writing at its advanced level requires more attention from researchers.

In addition, research within the field of contrastive rhetoric often has viewed the difference in writing styles between L1 and L2 speakers as deviance from the

norm, thereby contributing to the deficit approach inherent in the field. The danger of such an approach lies in its potential exclusion of the fact that the difference might actually be the result of the use of another rhetorical strategy.

Another limitation in contrastive rhetoric involves analyzing rhetorical structure on one hand and pragmatics on the other, while ignoring the connection between both aspects of discourse. Even though it is true that move analysis allows us to understand the organization of a text, and pragmatic studies allow us to see how persuasive techniques are used, we fail to take into consideration their interaction.

However, despite numerous efforts made in the domain of academic discourse and genre studies, there is still an important gap in existing knowledge. Namely, prior research has concentrated on either structural aspects of research papers via move analysis or linguistic means used in texts via pragmatic and stance analysis approaches, yet the attempts of integrating these two perspectives into one study are very rare. Besides, even when the comparative analysis of texts produced by native and non-native speakers was conducted, it was typically carried out using the deficit approach which implies the emphasis on deviation from idealized language models instead of focusing on variations caused by different rhetorical positions of the authors. Furthermore, although many academic genres have already become an object of scholarly interest, highly specialized disciplines such as cardiology have not been paid much attention, especially when it comes to investigating the interaction between rhetorical and pragmatic devices utilized in certain parts of research articles.

In sum, all of these constraints underscore the necessity of adopting a more

complex and holistic methodology when studying academic discourse, one that goes beyond merely describing it statically or focusing on its deficits and instead seeks to recognize its complexity, diversity, and contextualization. This void is filled by the current study's adoption of a dual analysis framework, which seeks to examine both the rhetorical moves used and the persuasive strategies employed in cardiologic research papers.

3. Significance of The Study

In order to address precisely the shortcomings discussed above, the current research seeks to offer a more comprehensive description of academic discourse in research papers written by cardiologists. First of all, in contrast to other literature, which does not cover both aspects of academic discourse simultaneously, in this work both rhetorical moves and pragmatics will be analyzed in one study. Moreover, there is little research into discourse in medicine; therefore, the present investigation is going to fill this gap in the literature.

Thus, the research is going to investigate not only the structure, but the functions performed by rhetorical moves in the Discussion sections, and at the same time will reveal the persuasive techniques that can be used by writers in the Results sections in order to achieve coherence and persuasiveness of their texts.

Moreover, the study applies a comparative methodology, considering variations in rhetorical style in relation to native and non-native speakers of English not as deviations from an absolute standard, but as manifestations of different orientations towards rhetorical and discursive practices. In so doing, it moves beyond deficit models of variation in academic discourse and attempts to provide a more

balanced perspective on the phenomenon.

In terms of methodology, the research will adopt a combination of qualitative and quantitative approaches in the analysis of the target corpus. The combination of these approaches will enable the researcher to identify general patterns in the data, while also enabling the functional interpretation of rhetorical and pragmatic devices in specific situations.

Finally, the project aspires to be a contribution to the areas of genre analysis, academic discourse studies, and ESP. Specifically, it is aimed at providing an empirical, theoretically sound, and discipline-specific study of meaning-making, argumentation, and persuasion processes in cardiology research articles.

4. Research objectives :

The current research intends to explore the academic discourse within cardiology research papers using an integrative approach towards rhetorical structure and persuasive techniques. It is expected that it will help to

RO1 To analyze the organization of rhetorical moves in the Discussion sections of cardiology research articles authored by native and non-native English speakers.

RO2 To identify and examine the persuasive strategies employed by native and non-native authors in the Results sections, including hedging, boosting, quantification, comparative framing, signposting, and positive framing.

RO3 To compare native and non-native authors in terms of (a) rhetorical move integration in the Discussion sections and (b) the use of persuasive strategies in the Results sections.

RO4 To provide recommendations for ESP instruction based on the observed rhetorical and pragmatic patterns, aiming to improve the scientific writing skills of non-native researchers in cardiology.

5. Research Questions

The following research questions are answered within this research in relation to the above objectives:

RQ1 How are rhetorical moves organized in the Discussion sections of cardiology research articles authored by native and non-native English speakers?

RQ2 What persuasive strategies—including hedging, boosting, quantification, comparative framing, signposting, and positive framing—are employed by native and non-native authors in the Results sections of cardiology research articles?

RQ3 What are the similarities and differences between native and non-native authors regarding (a) rhetorical move organization in the Discussion sections and (b) the use of persuasive strategies in the Results sections?

RQ4 How can the identified rhetorical and pragmatic patterns inform ESP instruction to enhance the scientific writing skills of non-native cardiology researchers

6. Research Hypotheses

The current research is based on the hypothesis that even though both native and non-native writers are equally aware of the usual structure of research articles, there are distinct differences in how rhetorical and pragmatic devices are used in them.

While it can be assumed that writers who speak English as their native language will utilize a recursive and integrated way of organizing discourse, which involves performing various rhetorical functions in one continuous stretch of text, allowing for the creation of arguments that have rich interaction and transition.

On the other hand, it can be said that writers whose first language is not English will use a linear form of organizing discourse, in which rhetorical devices are performed as distinct entities, which while making them clear and explicit, might affect the level of rhetorical integration.

In addition, it is also assumed that native writers will be able to utilize persuasion in a sophisticated manner, maintaining the right balance between hedging and boosting as well as incorporating evaluation into the process of quantifying. However, non-native writers will tend to use quantifying, comparing, and structuring as their main tools for establishing authority.

It should be noted that these distinctions are not considered signs of inadequacy, but simply different approaches to persuasion based on different academic backgrounds and socialization processes.

7. Structure of the Dissertation

The present study is divided into three major chapters, besides the current introductory chapter and the concluding chapter.

Chapter One offers a critical survey of existing literature in the fields of academic discourse, genre theory, move analysis, and persuasive techniques with specific emphasis laid on their relevance in scientific and medical communication. In

addition, it offers an overview of the results of earlier comparative studies on academic discourse in L1 and L2 settings.

Chapter Two presents the methodology of the present study and discusses all aspects of the research process, including the design of the study, selection and compilation of the corpus, methods and models of analysis, as well as concerns regarding validity, reliability, and ethics of research.

In Chapter Three, there is a presentation of the results of the analysis and a thorough discussion of these results. This chapter discusses the rhetorical structure of discussion sections as well as the use of rhetorical devices in result sections from both native and non-native writers. This comparison of styles is explained theoretically, and finally, there is a discussion of the pedagogical significance of the results concerning ESP teaching.

8. Definition of key terms

Academic Discourse: A mode of discourse that takes place within particular social communities and involves processes of construction, negotiation, and dissemination of knowledge in accordance with disciplinary and rhetorical norms.

Genre: Communicatively related classes of events that are defined in terms of common goals, conventions, and discourse practices among certain discourse communities.

Rhetorical Moves **Rhetorical** units of analysis that have communicative functions in the text and that contribute to the structure and progression of the argument.

Persuasive Strategies: Rhetorical and linguistic strategies used to persuade readers to accept a certain argumentation, which include, for example, hedging, boosting, evaluation, and comparison.

Hedging: A linguistic strategy for expressing hesitation, doubts, uncertainty, thus making statements less extreme and more negotiable.

Boosting: A linguistic strategy for expressing confidence and emphasis, used to make statements stronger and more persuasive.

Quantification: A strategy involving the use of numbers and statistics as rhetorical means for supporting claims and arguments and increasing their objectiveness.

Non-native Writers: Authors who write in English as a second language, with varying linguistic, cultural, and educational backgrounds.

Literature View

Introduction

Academic writing and discourse have been the focus of much discussion over the past few decades in the modern academic community, where both the creation and distribution of information depend on certain discourse strategies. Research articles play a key role in the process of conveying messages, constructing arguments, and positioning oneself within one's own discourse community. The study of academic discourse and its various facets has gained much importance during the last few decades, particularly in the realm of ESP.

In past years, academic writing was thought to be an objective and neutral method of conveying ideas, since it focused mainly on representing information and data accurately. Nonetheless, this idea has been seriously contradicted by later studies that point out that academic writing is actually a rhetorical and interactive process aimed at persuading readers of something (Hyland, 2005). It is not just about sharing results; writers create knowledge through selection, organization, and interpretation of data, thereby trying to persuade their audience of the truthfulness of the information they convey.

The research article is really important when we talk about work. It is very popular. Many people study it especially in fields like cardiology. In these fields research articles are the way that scientists share and look at their results. Research articles have a strict format because they have to be precise, clear and make sense. This is what science is, about. The research article is a part of science because it helps us understand things in a logical way.

The globalization of publishing has brought a lot of non-native English-speaking scholars into international discussions. This is a thing because it makes academic conversations more interesting. However it also creates problems. Non-native writers have to deal with language barriers and complicated writing rules.

Because of this people are now comparing the writing of non-native academic writers. They are looking at how they organize their ideas make arguments and try to persuade people. Academic publishing has. Non-native English-speaking scholars

are now a big part of it. The writing of -native academic writers is different from native academic writers, in many ways, including how they organize their thoughts and make their points.

This study is embedded in this larger discussion, with the intention of identifying and analyzing the rhetorical actions and persuading tactics used in cardiology articles written both by native and non-native speakers of English. In order to accomplish this goal, the chapter begins with a literature review focusing on academic discourse, genre theory, move analysis, and persuasion. Medical research articles are analyzed, giving preference to those studies comparing medical research articles written by native and non-native authors.

1. Academic Discourse And Genre Theory

1.1. Academic Discourse As Social Practice

The best way to consider academic discourse is within a socially constructed perspective, whereby it is informed by the norms and value system as well as the epistemology of the discipline communities that use the discourse form. It would be inappropriate to view academic writing as a neutral process or a pure form of communication

Hylan (2005) points out that academic writing is a process of communication between the writer and the reader, where the writer anticipates possible questions from the reader, takes sides with or against other writings, and constructs his arguments in such a way that he can win the reader's agreement.

Furthermore, academic writing can be described as inherently intertextual. Writers constantly refer back to prior literature, include outside references, and situate themselves within an extensive body of research. In addition to establishing themselves as credible, writers show their affiliation with the specific discourse community they belong to (Swales, 1990).

Moreover, academic writing is also affected by the institutional and cultural contexts. For example, the conventions of publishing, peer review, and the disciplinary practices of presenting knowledge affect the form and evaluation of the

work. Therefore, proficiency in academic writing involves not only language skills but also knowledge of the surrounding context.

Another key feature of academic discourse is its use of certain language characteristics, including nominalizations, passives, and complicated noun phrases (Biber & Gray, 2010). While these language characteristics are responsible for the complexity and accuracy of academic writing, they can be difficult for novices and non-native speakers to grasp and use effectively.

1.2. Genre Theory : Foundations And Developments

Genre theory has emerged as one of the most important frameworks in the study of academic discourse because it offers explanations of how texts are constructed and what communicative intentions are accomplished through them. According to Swales (1990), a genre can be understood as a group of communicative events that share the same communicative intentionality, known by the members of the discourse community.

Expanding upon the theory put forth by Swales, Bhatia (1993) provided a much more thorough explanation of genre analysis with an increased focus on the interrelation of linguistic, cognitive, and social factors involved. Genres can be said to be dynamic in nature, as they develop based on new situations.

According to Martin's Systemic Functional Approach (1992), genres are defined as being "staged and goal directed social processes." The emphasis is placed on the sequential nature of the construction of the text through the use of language.

The evolution of the understanding of genre has more recently been characterized by the discussion of the notion of genre hybridity and genre variation, acknowledging the flexible nature of genres that may be modified depending on the situation. Hyland (2004) writes, "Even as they provide models for communication, genres can also be manipulated by expert writers in pursuit of rhetorical ends."

Additionally, theories about genre have been associated with pedagogy, especially in ESP environments, where genre theory is applied in teaching students how to write texts specific to a particular discipline. Genres are made explicit

through the use of genre theory, allowing for better participation in academic discourse.

1.3. Genere Analysis In ESP

For ESP studies, genre analysis is an effective instrument for research purposes as well as for teaching. Through genre analysis, researchers can determine certain regularities within specialized texts and give learners knowledge about conventions in their particular fields.

According to Hyland (2004), genre-based instruction is especially helpful to non-native speakers because it enables them to recognize the conventions of academic discourse, thus helping them develop competence in meeting these conventions. This is because learners will be able to learn how certain rhetorical and linguistic conventions are used through text analysis.

Genre analysis in ESP is not limited to the surface aspects but focuses on the purpose and function of the texts. The functional approach allows for a more profound appreciation of how meanings are conveyed and created.

In recent years, there has been an incorporation of corpus-based methods into genre studies, which allows for the analysis of larger datasets and the detection of patterns within them. This approach has brought a new perspective on variation within academic fields.

Moreover, studies in ESP have pointed out the problems that arise for non-native writers in dealing with rhetorical conventions, which are implicit. For this reason, genre analysis has emerged as an important element in teaching academic writing.

2. Research Articles As A Genere

2.1. Research Articles In Scientific Communication

Scientific papers are considered to be the fundamental pillars of scientific discourse and hold an important place in the process of knowledge development. The research paper is a standard format of research presentation which facilitates consistency and reliability in the presentation of research results (Day & Gastel,

2012).

In medical fields like cardiology, scientific articles play an especially important role, since they may impact patient care and decisions made regarding patients' treatment. For that reason, scientific articles should be written with great precision and clarity.

Research articles can be used to build one's credibility in his/her profession as well. Publishing one's research in a respected journal is considered a measure of success by many academics; hence, the ability to publish research papers becomes imperative.

3. The IMRAD Structure

The IMRaD format, which stands for Introduction, Method, Results, and Discussion, is commonly seen as the standard format of a scientific research paper. It is based on the natural process of conducting scientific studies and ensures efficient information exchange.

Every section plays its specific role in rhetoric:

- The Introduction does not only provide information on the background of the subject matter, but it also gives the importance of conducting the research along with its limitations.
- The Methods part of the research paper guarantees transparency through detailing the methods used for carrying out the study.
- The Results section of the research paper is where the results are stated objectively.
- The Discussion part gives the interpretation of the results.

However, even with all the standardization seen in the IMRaD structure, research has demonstrated that there is great variability among these sections, especially regarding rhetorical moves and linguistic characteristics.

3.1. Variation Across Disciplines

Disciplines and their varying styles of communication are important considerations when discussing research paper structures and languages. Hyland (2000) observed that each discipline has its own rhetoric conventions, which are manifested in its writing style.

For instance, the former stresses brevity and objectivity, whereas the latter permits an elaborated style of argumentation. In the case of science itself, even different disciplines within the same broad field like biology, medicine, and engineering may have distinct styles.

For instance, in cardiology, there exists a great emphasis on accuracy since the conclusions drawn by the researchers may be directly applied in the clinical practice. Therefore, it is imperative that the writers stick strictly to the existing conventions while at the same time making compelling arguments.

4. Move Analysis In Research Articles

4.1. Concept Of Moves

Moves are critical to the notion of genre analysis. According to Swales, a move is referred to as a functional unit of language used for carrying out certain functions within a text (1990). Moves are characterized by their linguistic attributes and play a role in creating the structure of a genre.

Significantly, the execution of the move may vary according to the context and the purpose of the move. For example, writers may choose a specific strategy of realizing a particular move according to the situation.

4.2. Applications of Move Analysis

Analysis of moves has also been widely used on research articles, where it provides information about their rhetorical structure. Different parts of articles, such as the Introduction, Method, Result, and Discussion sections, have been analyzed using the concept of move analysis.

For instance, in the discussion section, moves usually involve interpretation

of results, comparison of findings with those from other studies, and noting implications (Dudley-Evans, 1994). These moves are vital for forming persuasive arguments.

5. Move Models In Academic Writing

5.1. Swales' CARS Model

CARS continues to be one of the most successful models employed for the genre analysis framework. The model emphasizes the need for positioning the research within the realm of prior studies and its importance.

Every move entails certain rhetorical moves, including the review of existing literature, identifying gaps in the literature, and describing the present study.

5.2. Dudley-Evans' Framework

Dudley-Evans' framework gives a comprehensive explanation about the structure of the rhetorical process used within the Discussion section. This section is a difficult one as authors need to interpret findings, validate arguments, and interact with prior research work.

5.3. Limitations of Move Models

Even though they are useful in analyzing discourse practices, move structures have been accused of being reductionist in terms of representing complex discourse practices. According to Bhatia (1993), this approach might not adequately represent the genre practices.

Furthermore, move analysis may depend greatly on the researcher's interpretation, which can lead to unreliable results. Nonetheless, it is a useful strategy in the comprehension of academic texts.

6. Persuasive Strategies in Academic Writing

Persuasion lies at the heart of academic writing. Authors have to persuade their readers that their study is legitimate through a variety of techniques of persuasion.

These include but are not limited to metadiscourse, evaluation, and stance, among others, which Hyland describes (2005). These enable the writer to interact with the reader in their attempt to understand the text.

7. Native Vs. Non-Native Academic Writing

Scholars have repeatedly confirmed that non-native writers encounter various obstacles when trying to acquire the skills required for academic writing. These obstacles involve linguistic proficiency, rhetorical structuring, and knowledge of the target audience (Hinkel, 2002).

Non-native writers may depend more heavily on structure and may differ in the application of persuasive devices. The cultural background of the writer will affect writing techniques, thereby resulting in differences in rhetoric.

8. Empirical studies on Medical Research Articles

8.1. Overview

Many studies have been conducted on medical research articles, emphasizing their rhetorical structure, linguistic characteristics, and persuasive techniques.

8.2. Move Analysis Studies

Nwogu (1997) provided a comprehensive schema of moves for the genre of medical research, distinguishing between required and optional moves. The findings of this study still serve as a benchmark for scholars researching the genre of medical research writing.

Kanoksilapatham (2005) later showed that although there is consistency in the moves, there is variability in their enactment.

8.3. Comparative Studies

It was discovered by Peacock (2002) that there is variation within disciplinary move structures, with sciences having more standardized move structures.

Underutilization of evaluative and interpretative moves was reported for non-native writers by Basturkmen (2012), which can make it harder for them to convince

readers.

Native speakers use argumentative and evaluative language more than non-natives who resort to descriptive techniques more often (Martínez, 2005).

8.4. Studies On Persuasive Strategies

Hyland (1998, 2005) proved that skilled authors apply both techniques of hedging and boosting purposefully. On the other hand, non-native speakers find it difficult to achieve the equilibrium between these techniques.

The author (Vassileva, 2001) identified cross-cultural differences in persuasive rhetoric.

8.5. Medical and cardiology-specific Research

Medical writing research places a great deal of importance on being precise, being cautious, and using numbers. However, there are no specific studies conducted within the field of cardiology.

Conclusion

In this chapter, there is an in-depth and critical examination of the scholarly literature on academic discourse, genre theories, move analysis, and persuasive rhetoric in academic writing. In particular, the complexity of research articles is pointed out, and they are identified as both informative and persuasive documents.

The review of the existing literature also indicated that, even though numerous studies have been done in the field of medical writing, there is still much to be discovered regarding cardiology writing and comparison of writing styles by native and non-native authors.

By focusing on these aspects, the current study attempts to add to our knowledge about academic discourse and communication.

Methodology

Introduction

Academic texts written within scientific fields, for instance, cardiology, should not be considered mere carriers of knowledge because they comprise a complex, socially conditioned form of communication with its own rules and guidelines of rhetoric and epistemology. The rules not only determine how knowledge is organized in an article but also dictate how it should be understood, assessed, and, finally, accepted by other scholars in the discipline. From this perspective, academic texts serve as locations at which knowledge is created as a result of certain processes of rhetoric and epistemology.

In general, the role played by the Discussion section within the framework of the whole paper is especially important because it is in this section where authors go beyond presenting the results obtained and engage in their analysis, evaluation, and arguing. Here, writers define the significance of the results found, their connection to other works written in the same field, and build up claims that will further develop the area in question (Swales, 1990, 2004; Yang & Allison, 2003). In other words, the discussion of the rhetorical structure of the Discussion section can help better understand how scholarly arguments are constructed and what role writers play within them.

In addition, the Results section, long considered a source of objective description, is being seen more often as a venue for rhetorical strategies that can be easily overlooked but are nonetheless powerful. By means of language features like hedging, boosting, and evaluations, authors control how the reader interprets the numerical information and how their results are received (Hyland, 1998, 2005;

Hunston & Thompson, 2000). The clear distinction between "objective reporting" and "interpretative discourse" thus becomes blurred, as both sections serve to build the persuasive power of the research article.

In light of the above, this study aims at exploring the role of rhetorical and pragmatic structures in cardiology research articles produced by native and non-native English speakers. This chapter gives an overview of the methodology adopted in order to accomplish the aforementioned goal. It starts with an explanation of the research design, then proceeds with an elucidation of the corpus used in this study and how it was selected, followed by a discussion on the framework used for analyzing the data from both rhetorical and pragmatic perspectives. Special emphasis is placed on providing clarity throughout this section in order to facilitate assessment in terms of validity and reliability.

1. Research Design

In the current study, use a comparative corpus-based research methodology that involves both quantitative and qualitative methods of research in order to analyze academic discourse in an integrated manner. The combination of these two methodologies is well suited for the study of genre and discourse phenomena because it allows us not only to identify but also interpret communication-related patterns.

Quantitatively speaking, the present research utilizes frequency analysis in order to establish the patterns in the usage of the rhetorical devices and markers of persuasion in both sub-corpora. The use of frequencies is essential from the empirical point of view since it allows the researcher to define the presence and absence of

certain elements in one or another group of texts. Nevertheless, considering the fact that the texts analyzed in the present corpus differ in length, it would be inappropriate to compare them solely based on their frequencies. That is why the analysis also involves normalized frequencies, which are calculated as the proportion of the words in each text to the overall number of words.

As far as the qualitative approach is concerned, it is about understanding the rhetorical and pragmatic aspects of language. The analysis does not look at the individual linguistic components but rather considers them as part of something bigger – the purpose for which they are used. The aim here is to understand the way that particular language is used to perform argumentative functions, make evaluations, and engage the reader in the text.

The blend between the quantitative and qualitative approaches can be understood in terms of the genre analysis, as discussed by Swales (2004), which requires the researcher to analyze both the structure and the purpose of the discourse. The use of quantitative methods reveals certain trends in discourse, whereas the qualitative method makes possible to examine the way these trends work in practice.

Furthermore, the research is grounded in the principles of contrastive rhetoric (Connor, 1996). The assumption behind this framework is that writing can be different depending on one's linguistic and cultural background. In this way, the comparison between native and non-native writers allows for the detection of common disciplinary conventions as well as different ways of rhetorical expression, which can be affected by previous writing experience and knowledge of academic English discourse.

2. Corpus Description And Selection

The corpus that has been used in this study forms the empirical basis on which further analysis is conducted. The development of the corpus was motivated by the desire to have a corpus that is representative, comparable, and relevant to the goals of the study, especially in relation to rhetoric in cardiology research articles.

The corpus is comprised of twenty (20) academic papers that have been written in the English language and are located within the discipline of cardiology. In terms of their authorship, the selected papers have been equally distributed between those authored by native and non-native English speakers, which means that there are ten articles belonging to each category. It is crucial to note that such a design is fundamental for facilitating an objective and systematic comparison of the selected texts and allowing researchers to detect the difference in rhetorical and linguistic strategies employed by them.

It would be appropriate to state that the choice of cardiology as a subject matter was deliberate. On the one hand, this area of knowledge can be described as quite specific and rigorous since it implies a significant amount of empirical data, standard procedures of reporting, and accurate terminology. For this reason, it is possible to argue that it is a good choice for genre analysis because the relative stability of its discourse practices makes it easier to identify rhetorical patterns used in scientific writing.

All the papers used in this corpus are extracted from highly rated international journals. The reason why this requirement is important is that all

articles in the corpus should meet certain criteria for quality, which means that they must be edited and reviewed before being published. Therefore, this criterion is necessary in order to ensure that the linguistic and stylistic devices used are those of quality academic texts.

To ensure temporal relevancy, only articles written between 2018 and 2023 were selected for the review. The choice of this period is dictated by the need to reflect current academic writing conventions and trends, especially those relating to the necessity of being clear and transparent and providing reliable data reports in medical studies.

One of the most important aspects when choosing the corpora was to be able to ensure their comparability. For this purpose, all articles included in the corpus have the following features:

- They conform to the IMRaD format, that is, their structure includes Introduction, Methods, Results, and Discussion sections.
- These articles represent results of the authors' empirical study and therefore are not review papers or theoretical studies, which could demonstrate a different writing pattern.
- They have an almost equal number of words, and deal with similar issues.

Authors were classified according to their being natives or non-natives through a process based on institutional affiliation, the nature of the authors, and the publication context, adhering to existing tradition in the field of contrastive rhetoric (Connor, 1996). Although it should be noted that the division of authors in this way

is not capable of fully accounting for the issue of linguistic identity in an ever more globalized academic world, it remains useful nonetheless.

It should also be emphasized that the corpus was regarded as a special small corpus that could be used both qualitatively and quantitatively to analyze the texts in detail. Being relatively small, the corpus makes it possible to investigate particular texts and their linguistic features in great detail, which is crucial for conducting the research on the level of depth necessary for a genre study.

3. Analytical Framework

In this research paper, the approach taken by the author in analyzing the subject matter is based on the utilization of multiple theories. The author uses the theories of genre analysis, discourse analysis, and pragmatics. Through the use of this multi-theory approach, the author will be able to examine not only how texts are structured but also how meanings are constructed.

3.1 Rhetorical Move Analysis:

The study of the Discussion sections is performed through the lens of an integrated model informed by the theoretical framework created by Swales (1990, 2004), Dudley-Evans (1994), and Yang & Allison (2003). All of these theorists understand academic texts as an organized set of rhetorical moves, wherein each move constitutes a meaningful communicative unit.

In the current investigation, seven key rhetorical moves have been singled out for their relevance to the structuring of the Discussion section:

1. Statement of purpose and principal findings

2. Interpretation of main results
3. Explanation of unexpected or subgroup findings
4. Comparison with previous studies
5. Mechanistic explanation
6. Clinical implications
7. Limitations and validity

Each move has its own individual role in the discourse that at the same time works together with other moves. For instance, the results' interpretation is aimed at translating empirical data into assertions, whereas the comparison with the literature puts assertions in the context of the established corpus of knowledge. Mechanistic explanation provides the theoretical foundation for the research, and limitations contribute to its validity.

One of the critical decisions regarding methodology taken in the present study is to use a functional approach to move identification where the function of moves is considered before any form-related considerations. In other words, in identifying moves, emphasis is placed on their role as opposed to their structural makeup. The use of this approach in analyzing advanced academic writing becomes even more crucial considering the tendency of embedding and overlapping of functions within a rhetorical structure (Dudley-Evans, 1994).

3.2. Pragmatic Analysis Of Persuasive Markers

Apart from the structural perspective of the discourse, the current research explores its pragmatic aspect that involves the authors' choice of language that will be used for evaluative, stance and persuasive purposes. This part of the research is based on the

ideas of Hyland (1998, 2005) and Hunston & Thompson (2000) about the importance of the linguistic means of shaping the connection between writer, text, and reader.

These are the six types of persuasive markers that were focused on:

1. Hedging, which permits authors to hedge statements as a means of expressing caution and reducing the certainty of the statement being made.
2. Boosting, which helps authors emphasize their certainty in relation to the statements they are making and the importance of their results.
3. Quantification, which adds numerical information and increases objectivity.
4. Comparative marking, which helps establish connections and relationships between results.
5. Signposting, which provides instructions for navigating through the structure of the writing.
6. Trend/Observation marking, which is used to describe trends or tendencies observed in the data.

In addition to counting such markers, the analysis focused on their contextual roles as well. That is to say that the functioning of each marker in individual sentences and in patterns of meaning creation was evaluated.

In the case of rhetoric and pragmatics, their integration demonstrates a comprehension of academic discourse as both a structured entity and an interactional process, wherein meaning is constituted through the interplay between structure and language use.

4. Data Collection And Analysis Procedures

The procedures for collecting and analyzing data were undertaken using a systematic approach that integrated the use of computer methods along with intensive manual review to achieve efficiency and analytical depth.

In the first step, the process of collecting and preparing the corpus was conducted. Articles chosen for inclusion in the corpus were sourced from academic databases and were transformed into simple text format. In this step, irrelevant portions of the text, including the bibliography, tables, and figures, were filtered out wherever appropriate. The sole focus during this step was to include only those parts of the article that were pertinent to the study, i.e., the Results and Discussion sections.

In the next phase, AntConc was employed as the key tool that made it possible to carry out quantitative analysis of the corpus. The following results were obtained using AntConc:

frequency lists of the lexical items

concordance lines that included the context for particular words and phrases

keyword patterns related to persuasive indicators

Such approach enabled identifying the linguistic features that occurred systematically and served as a basis for further analysis of the persuasive techniques.

But since it is not possible to completely account for all rhetorical acts and functions of persuasion using computational analysis, there was also an extensive use of manual coding techniques within the research. The texts were individually analyzed to recognize rhetorical acts according to their communicative function. In

doing so, context played a crucial role, as a single linguistic act can serve multiple purposes depending on its application.

In addition, contextual interpretation was important when identifying persuasive devices, because it is only through context that one can determine whether the meaning of an item such as "suggest," "may," and "significantly" is consistent with its function in a particular sentence. Therefore, the concordance lines produced by AntConc were scrutinized carefully to make sure that items were correctly identified.

An important stage in the study was the normalization of frequencies. That is, raw frequencies were converted into normalized frequencies, normally per 1,000 words, in order to minimize the effect of unequal length among texts.

Two parallel levels of analysis were carried out. The first level is known as intra-group analysis. At this level, patterns are studied within each sub-corpus with an aim of identifying features of native and non-native writing. The second level of analysis is referred to as inter-group analysis. At this level, patterns found within each group are compared with each other to establish similarities and differences between native and non-native writing.

At each stage of the analysis process, an iterative strategy was employed. This means that there were numerous rounds of observing, categorizing, and interpreting the data.

5. Validity And Reliability

The issue of establishing the validity and reliability of the research forms one of the key aspects in the current investigation, especially considering the interpretive aspect of discourse analysis and the possible subjective element in the process of detecting rhetorical and pragmatic elements. In this regard, several methodologies were employed in an attempt to ensure the credibility and reliability of the results.

As far as the validity aspect is concerned, the goal of the research is to make sure that the analysis reflects reality by ensuring that the processes used in the process of analysis reflect the phenomenon studied, which refers to the organization of discussion sections from a rhetorical perspective and employing persuasive strategies in results sections. The primary way of reaching this goal includes utilizing the well-known theoretical constructs in order to ground the categories applied within analysis, including, for instance, the construct suggested by Swales (1990, 2004) regarding genre analysis, the one suggested by Dudley-Evans (1994) in terms of move structure, Yang and Allison's (2003) construct regarding discussion sections, and Hyland's (1998, 2005) construct concerning stance and engagement.

Furthermore, construct validity is ensured by applying a functional analysis of the text, which entails identifying rhetorical moves and persuasive devices on the basis of their functions rather than their linguistic manifestation. This method enables a more precise understanding of meaning construction within a text since sometimes a certain linguistic device can have several meanings, while at other times one meaning can be produced by a variety of linguistic devices. In this way, the study maintains flexibility in the classification of rhetorical moves and persuasive devices.

Yet another element of validity that should be considered within this study is methodological triangulation, which presupposes combining quantitative and qualitative analyses. On one hand, the process of quantitative analysis is conducted in terms of frequency and normalized counts. This approach provides researchers with a systematic and reproducible method of detecting patterns within the whole corpus. On the other hand, the qualitative analysis allows for interpreting the detected patterns within the context. It is possible to conclude that both approaches to analysis are necessary to ensure valid results because they combine different angles on the issue under discussion.

As far as the question of internal validity is concerned, special emphasis was made on consistency in the coding procedure. Precise rules for the identification of rhetorical actions and persuasive indicators were set up, and these rules were consistently followed throughout all texts within the corpora. Despite the necessity of interpretation involved in the analysis, the application of pre-defined categories and constant reliance on theoretical frameworks minimize the role of subjectivity.

Regarding reliability, which pertains to the accuracy and repeatability of the results, there have been several ways undertaken to ensure this. Firstly, the application of corpus analysis tools (AntConc) guarantees a consistent and reliable procedure in identifying lexical items and computing frequencies. Corpus analysis tool provides an objective means to identify instances of persuasive markers, reducing the chances of omitting any item from the analysis.

Secondly, the coding process was done carefully, ensuring that the rhetorical functions of each segment were clearly identified by multiple readings of the selected

texts. When needed, there were re-examinations of the segments based on the theoretical framework presented to verify whether they truly belong to a certain category or function.

Moreover, the employment of normalized frequency scales enhances the reliability of the study through the avoidance of any biases resulting from variations in the size of the text. As a result, through normalization of frequencies, the study will ensure that the trends established are real trends in language usage, rather than an illusion generated by the size of the text.

It should be noted that, like all discourse-analytical studies, it may not be possible to achieve total objectivity due to the interpretive nature of discourse analysis. Nevertheless, the reliability of the study will be ensured through adherence to methodology, theories, and clear description of the process, enabling replication by other scholars.

6. Ethical Considerations

The current study follows accepted ethical principles in academic research, guaranteeing that all practices will be carried out in an honest, open, and responsible manner.

The texts analyzed in this study are limited to those of scientific articles from peer-reviewed academic journals. In this regard, the texts are part of the academic discourse that is in the public domain and are meant for academic purposes; thus, there is no need for ethical considerations about consent, anonymity, or confidentiality. This study is not like a study involving human participants, where risks might arise because of collecting personal information.

However, even in view of the public availability of the data, it is necessary to emphasize the need to observe all the requirements of ethics in the process of its representation and usage. All articles incorporated in the body of the work have been approached in an academically respectful manner, and, in case there was a need to provide a certain example or mention a certain research in passing, the original was respected. Any excerpts from the sources used in the analysis have been provided in good faith.

What is more important, in the course of this investigation, no attempt has been made to distort or misrepresent either of the two author groups, nor has the quality or academic value of the works been put in question. The division of authors into native and non-native is applied merely for the purpose of comparison in the context of contrastive rhetoric (Connor, 1996) and has nothing to do with evaluating either side in terms of academic superiority or inferiority.

The final ethical issue that should be discussed has much to do with the ethics of conducting scientific research. As a matter of fact, all methodological issues of the research, from selecting corpora to applying analytical criteria and coding, have been discussed thoroughly in order to make sure that this study can be critiqued and, if necessary, reproduced by other researchers. This approach to conducting research has always been seen as one of the main principles of ethics because it allows for building confidence.

The current study does not involve the use of any unethical practices such as manipulating findings and selecting only those pieces of information that correspond to the expectations. It means that all observations have been recorded objectively.

Finally, it should be pointed out that the goal of the study is not aimed at favoring one category of authors at the expense of the other. On the contrary, it focuses on the comparison of the ways how rhetoric and pragmatics differ among different categories of academic writing practices in an informative and academic way. Through the description and interpretation of the phenomena in question, it may lead to improvements in academic writing practices, especially in ESP.

Conclusion

The approach used in the current research and described in the chapter is well-defined and thoroughly structured to assure that the research will be methodologically sound and theoretically coherent. The discussion of the research design, choice of the corpus, analytical approaches used, as well as the data gathering process and the way the data are analyzed, are all geared toward achieving transparency and clarity in approaching the variation in rhetorical and pragmatic choices in research articles on cardiology.

The core of the methodology involves the combination of corpus-based analysis with the genre-based approach and discourse analysis, which allow for a multifaceted investigation into the subject of academic writing. The application of a comparative corpus that includes samples of writing produced by native speakers and non-native speakers allows for systematic grounds for detecting similarities and differences between those samples, whereas the use of quantitative and qualitative approaches guarantees that such patterns can be adequately analyzed. In this sense, the methodology acknowledges the nature of academic discourse as a system of repetitive textual characteristics and a process of communicative activity, where

linguistic behavior is influenced by both the norms of the discipline and the intentions of the speaker.

With the help of frequency analysis and normalization techniques, reliable and precise comparisons between different texts irrespective of their lengths can be accomplished. Hence, the empirical nature of the results is guaranteed by using these methods. Moreover, the use of manual coding in accordance with functions performed by particular units enables taking into account the contextual aspects, especially when recognizing rhetorical and persuasive moves. It means that the methodological choice has helped to meet one of the key problems of discourse analysis – the trade-off between objectivity and the ability to make interpretations.

It should be mentioned that the use of certain theoretical frameworks, developed and suggested by Swales (1990, 2004), Dudley-Evans (1994), Yang and Allison (2003), and Hyland (1998, 2005), provides adequate theoretical background of this study and makes it consistent with traditional approaches to genre analysis and academic discourse studies. Therefore, choosing these frameworks and applying them to analyze scientific genres helps not only detect the characteristics in question but also interpret the obtained results against the background of existing scholarship. In other words, the current analysis does not exist on its own; it participates in the academic discourse on science writing.

It is also necessary to recognize the fact that even though the best efforts have been taken to ensure rigorous methodology, there are some limitations that are inevitable due to nature of the research itself. Firstly, the relatively size of the corpus, even though enough for thorough qualitative and quantitative analysis, is not large

compared to the massive amount of cardiology literature produced. Secondly, the categorization of authors into native and non-native categories, although inevitable, does not allow one to take into account all possible nuances related to linguistic competence and prior experience of academics. However, the aforementioned factors are no reasons to question the validity of the results obtained.

Overall, taking a broader look at the adopted methodology reveals the fact that the study in question represents an example of approaching the issue of academic writing from the point of view of its socially and rhetorically motivated nature. Rather than analyzing the text in terms of structural and lexical elements only, the researcher aims at identifying the patterns of communication by looking at the ways in which these elements interact to convey certain meaning.

Finally, the importance of this chapter lies in the fact that it provides the transition from the theoretical part of the paper to the empirical one. It is very important since the way in which the research was conducted greatly affects the outcomes and determines how the observations are made, quantified, and analyzed. Therefore, it explains not only the methodological side of the process, but also allows the readers to be ready for their further analysis in the next chapter and discussion within the broader academic context of ESP studies.

Results

Introduction

In this chapter, an interpretative discussion of the findings obtained through analysis of the corpus will be provided. In addition to the rhetorical structure of Discussion sections and persuasive strategies used in Results sections, attention will be paid to the context of these linguistic patterns within academic discourse, especially their roles in meaning-making, argumentation, and audience appeal.

The analysis of the corpus will progress in a step-by-step fashion. Initially, native speakers' texts and non-native speakers' texts will be investigated separately, after which a thorough inter-group analysis will follow. The step-by-step approach helps understand the specifics of the internal discourse practices of each group before examining the differences between the groups. In discussing the findings, the chapter will refer to existing theoretical frameworks, such as Swales' (1990, 2004) genre theory, Dudley-Evans' (1994) move analysis, Yang and Allison's (2003) model of Discussion sections, and Hyland's (1998, 2005) model of stance and engagement.

1. Rhetorical Analysis of Discussion Sections**1.1. Intra-native rhetorical structure**

An examination of the rhetorical devices used in Discussion sections authored by native speakers demonstrates that the discourse is rhetorically sophisticated in nature, and the moves are more than just present; they are employed in such a way that the text is capable of carrying out several communicative roles at once. Practically speaking, this implies that native speakers construct arguments in a manner that is not confined solely to the tasks of interpretation, explanation, comparison, and implication but involves a combination of all four of these processes.

Such a rhetorical structure can be illustrated by taking a look at the discourse used for the purpose of interpretation. Rather than presenting the task of interpretation as a separate step after the presentation of research findings, the writer often combines the move of interpretation with other moves, namely citation and explanation, thus integrating different elements of the argumentation process into one cohesive whole. That is, when interpreting a certain result, the writer may simultaneously state the importance of the finding, cite relevant literature, and explain the result in question.

This type of rhetorical performance fits within the framework of recursive discourse structuring, described by Dudley-Evans (1994). According to him, the process involves the movement from one communicative intention to another without following any strictly defined linear structure. The recursive structure creates a more fluid dialogue between the concepts that enables the author to develop an effective and persuasive argument.

The following example demonstrates the recursive tendency:

“Our findings indicate that ACE inhibitors significantly reduce left ventricular hypertrophy, aligning with established pathophysiological mechanisms and supporting previous work by Smith et al. (2019), suggesting potential clinical application in high-risk populations.” As in this case, the author fails to separate rhetorical operations. Rather, this statement serves several purposes at once: “indicating,” “supporting previous studies,” “aligning with known mechanisms,” and “suggesting” applications for practice. In effect, an intricate

rhetoical operation emerges here, in which various components of meaning are incorporated into one single stretch of discourse.

Table 1 Rhetorical moves in native-authored articles

Rhetorical Move	Artics (n)	Percentage	Intra-native pattern
Restating study purpose & principal findings	10	100%	Obligatory; often explicit and foregrounded
Interpretation of main results	10	100%	Obligatory; evaluative and clinically framed
Comparison with previous studies	10	100%	Dominant move; extensively developed
Explanation of subgroup or discrepancies	8	80%	Frequent; varies in depth and elaboraion
Mechanistic explanation or underlying process	9	90%	Strongly preferred; often integrated into interpretation
Clinical implications	9	90%	Explicitstated or implicitly embedded
Strengths, limitations & validity	8	80%	Often critically developed and strategically positioned

Disussion of Table 01

In terms of the pattern of move distributions, it becomes clear that in all cases native writers fully realize all essential moves in the Discussion section, thus demonstrating good understanding of disciplinary standards and norms. However, what is most important is not the mere presence of the moves themselves, but rather the way in which they are realized. The frequent realization of interpretation, comparison, and explanation in one single unit of text implies a special style of writing where the author actively establishes connections between various facts in order to build an argumentative chain of thought.

One can define such discourse as rhetorically rich, but not because it is complicated to comprehend, but because it serves more than one function in any piece of text. In other words, any element in the text contains more than one message.

1.2. Intra -Non-Native Rhetorical Structure

On the other hand, the Discussions composed by the non-native writers show a rhetorical pattern of organization which is linear and clearly organized, wherein each rhetorical move is usually accomplished by a specific and independent unit in the text. In other words, interpretation, elaboration, comparison, and implication are commonly made one at a time, and each is separated from the others.

This can be seen in the following samples:

“The subgroup of patients over 70 showed a higher response rate. This may be explained by pharmacokinetic differences. Further studies are required to confirm these findings.”

In this case, the rhetorical functions are very clear. There is a statement that shows the result, followed by an explanation of why this result occurred. Then there is a statement with a cautious evaluation. Although this makes the writing clearer, it also fails to create the same kind of interplay between the ideas, which occurs in native language writings.

Table 2 Rhetorical Moves in Non- Native-Authored Articles

Rhetorical Move	Articles	Percentage	General Pattern Observed
Move 1: Restating purpose & principal findings	9	90%	Frequently present ; often numerically detailed
Move 2: Interpretation of main results	10	100%	Consistently realized across the corpus
Move 3: Comparison with previous studies	10	100%	Extensively developed and literature-oriented
Move 4: Explanation of similarities / discrepancies	10	100%	Frequently explanatory and context-based
Move 5: Implications / contextualization	9	90%	Present in most articles often broad in scope
Move 6: Mechanistic / theoretical explanation	10	100%	Strong emphasis on casual and clinical explanation
Move 7: Limitations & future directions	8	80%	Commonly explicit, though varying in depth

Disussion of Table 02

As far as the frequent occurrence of all the moves mentioned above goes, it can be stated that non-native scholars are perfectly aware of the way the discussion should be organized. Nonetheless, the predominance of their occurrence as independent units seems to suggest the preference for clarity and explicitness. This can be related to the peculiarities of education, which often tend to emphasize the importance of writing according to the certain rules.

In spite of the effectiveness of such an approach, it makes it impossible to develop more complicated argumentative structures, since the interactions between various moves are not performed within the boundaries of one discourse unit. Thus,

it can be concluded that the discourse tends to become procedural in terms of its structuring.

2. Pragmatic Analysis of Persuasive Markers (strategies)

2.1. Intra-Native Pragmatic Synthesis

From the study of persuasive elements in the Results sections written by native writers, we learn that the discourse involves a dialogue of various evaluations and positions that work together to persuade in the Results section through the integration of several linguistic features and not the dominance of one.

Table 3 Persuasive marker categories in Native authored articles

Persuasive marker category	RA1	RA2	RA3	RA4	RA5	RA6	RA7	RA8	RA9	RA10	Total
Hedging/Caution	2	3	1	2	2	4	3	4	2	2	25
Boosting/Emphasis	4	5	2	2	2	3	4	3	3	3	31
Quantification	12	9	8	10	10	5	8	5	6	6	79
Comparative Framing	6	4	3	5	5	3	3	3	4	4	40
Structuring/Signposting	3	4	2	4	4	4	5	4	5	5	40
Trend/Observational Framing	2	3	2	3	3	3	2	3	5	5	31

Disussion of Table 03

Quantitative language is prominent because of the essential nature of quantitative data in science. Nevertheless, the distinctiveness of native writers lies in the fact that quantification appears in the context of evaluation. Quantitative data does not usually appear alone but always comes along with evaluative verbs, comparisons, and phrases that direct the readers' attention in a specific direction regarding the numbers being provided.

In this case, hedging proves effective since it enables the writers to control the degree of certainty of their arguments while still staying true to science.

Meanwhile, the use of boosting elements proves selective yet important for the emphasis of certain discoveries. It should be noted that the simultaneous use of these two contradictory strategies perfectly demonstrates Hyland's concept of balance between certainty and hesitation.

Further, the role of comparative framing and signposting in the structuring of the discourse also plays an important part in facilitating the comprehension of the data presented and placing it into perspective as regards the rest of the existing body of knowledge on the subject. Overall, it would appear that the strategy of persuasion adopted by the native writers is multi-faceted and context-bound.

2.2 Intra-Non-Native Pragmatic Synthesis

The persuasive techniques employed in the Results sections penned by writers who are not native speakers indicate a trend in which the persuading is done mainly by making direct allusions to data and comparisons, rather than through evaluation.

Table 4 Persuasive marker categories in Non- Native authored articles

Persuasive marker category	RA1	RA2	RA3	RA4	RA5	RA6	RA7	RA8	RA9	RA10	Total
Hedging/Caution	2	1	1	5	1	2	3	4	1	3	23
Boosting/Emphasis	3	2	3	4	3	3	4	5	4	4	35
Quantification	9	8	7	10	7	8	9	10	8	9	85
Comparative Framing	6	5	4	7	5	6	3	7	5	6	54
Structuring/Signposting	5	6	4	5	4	6	6	5	5	6	52
Trend/Observational Framing	2	2	2	3	2	3	2	3	2	2	23

Disussion of Table 04

The increased use of quantification is indicative of the strong emphasis placed on the importance of numbers as the principal source of argumentation credibility.

The absence of additional interpretation accompanying statistical findings suggests that the persuasive power of the argument is generated by the data alone rather than by its critical evaluation.

In a similar way, the prevalence of comparative frames demonstrates the tendency towards creating meaning via the direct juxtaposition of different objects or

situations. In addition, signposting signals are frequently employed, which indicates an attempt to ensure transparency in the organization of argumentation.

Though hedging does occur, it takes place in the form of commonly used phrases that do not add anything significant to the discussion beyond limiting the scope of the argument. Thus, while the discourse can be viewed as relatively cautious, it is likely not due to the author's rhetorical goals but to common practices within scientific writing.

2. Normlized Frequency Analysis of Persuasive Markers

To guarantee that the comparison among native and non-native writers is not affected by any differences in text lengths, the raw frequency numbers shown in the above sections were then transformed to normalized frequency numbers. This method of analysis facilitates a more precise and reliable comparison because it shows the comparative frequency of use per unit of text.

Table 5 Normlized frequency of persuasive markers in Native-authored articles

Category	Raw Frequency	Total Corpus Size	Normalization Unit	Normlized Frequency
Hedging/Caution	25	47919	1000	0,52
Boosting/Emphasis	31	47919	1000	0,65
Quantification	79	47919	1000	1,65
Comparative Framing	40	47919	1000	0,83
Structuring/Signposting	40	47919	1000	0,83
Trend/Observational Framing	31	47919	1000	0,65

Table 6 Normlized frequency of persuasive markers in Non- Native-authored articles

Category	Raw Frequncy	Total Corpus Size	Normalization Unit	Normlized Frequency
Hedging/Caution	23	45639	1000	0,50
Boosting/Emphasis	35	45639	1000	0,77
Quantification	85	45639	1000	1,86
Comparative Framing	54	45639	1000	1,18
Structuring/Signposting	52	45639	1000	1,14
Trend/Observational Framing	23	45639	1000	0,50

Disussion of Table 05 and Table 06

Normalization gives us a more precise view of the distributions of persuasive techniques among the two groups, helping to decide whether the results obtained from simple frequencies indicate any real rhetorical preferences, or whether they merely arise out of disparities in the volumes of corpora analyzed.

A careful analysis of normalized values suggests that the emphasis placed by both authors on the use of quantification cannot be seen as an outcome of longer writing; instead, it is an important characteristic of cardiology research writing. On the other hand, it can be noted that even after normalization, non-native writers exhibit a slightly greater preference for quantification, meaning that numbers play a key role in establishing credibility for them.

As can be seen from Table 6, normalized occurrence of the comparative frames and signposts also is higher in non-native texts, showing that the practice of clearly organizing and presenting information via relational terms persists among the target group of authors. Apparently, in their writing, non-native speakers prefer to make sure that information is clearly organized, leaving little doubt about its structure for readers.

As can be seen from Table 5, the normalized distribution in the corpus of native-authored texts seems more even than that, thus implying that no single form of persuasive force prevails in the construction of discourse among native speakers. As was pointed out previously, persuasion tends to involve a combination of resources for native writers.

Interpreting the results of normalization in terms of rhetoric reveals how the differences that exist between the two groups have resulted from the rhetorical preferences of the groups rather than any random factors. The two groups may be following a similar discipline but have chosen different ways to utilize their rhetoric through the use of different resources. The native speakers have chosen a more diverse way whereas the non-natives have been more focused.

3. Inter-group comparison

A closer look at these results together reveals that the disparities between the two groups of authors are not just related to the frequency of the elements used, but are also related to entirely distinct ways of constructing the academic discourse.

For example, native writers build their arguments in terms of interconnected layers of meaning, in which interpretation, explanation, and evaluation go hand in hand. This

makes the reading flow more naturally since all these processes can be conducted in one uninterrupted way.

Foreign language writers, however, generally follow a linear development strategy, in which each individual component is highlighted separately yet clearly. This method makes it easier for the reader to understand the argument, although its various parts might not necessarily be integrated with one another as strongly.

Such differences may be viewed as an indication of the writers' different approaches to academic writing, stemming from their respective linguistic traditions and academic experiences (Connor, 1996; Hyland, 2005).

4. Discussion

Once rhetorical structure moves and persuasive strategies have been discussed, it would be necessary to contextualize the findings within a larger theoretical frame. These tendencies are not coincidental occurrences; they are indicative of the deeper processes involved in academic discourse production and, moreover, within specific fields of scholarship, such as cardiology, where the dissemination of knowledge is directly connected with questions of reliability, accuracy, and scholarly professionalism.

The results obtained in terms of genre analysis also confirm the view of Swales (1990, 2004) concerning the conventionalized nature of research articles, since the use of certain rhetorical moves on the part of writers of both linguistic backgrounds testifies to the fact that researchers are expected to write within particular frames, which form an essential part of acceptable academic writing. Thus, the fact that both samples consistently demonstrate the use of such moves as

interpreting evidence, comparing it with the results of other works, and analyzing its implications means that these are not stylistic options available for selection by scholars, but rather a necessary component of scholarly practice.

Nonetheless, whereas the occurrence of the mentioned moves in the two groups' arguments is very much alike, the ways in which they are used differ from one another in terms of their effectiveness in conveying a message. In this regard, the differences in the rhetorical practices of native and non-native authors could be explained by means of analyzing the principle of recursive discourse organization described by Dudley-Evans in 1994. Native speakers seem to be able to use their ideas in the process of arguing in such a manner that enables them to shift from one rhetorical function to another.

Such an approach to building an argument implies continuous development of a thesis by making use of new data.

The discourse organization of non-native authors, in turn, seems to rely on the logic of accumulation and progression and does not include a lot of shifts from one idea to another. In other words, in their rhetoric, non-natives usually focus on presenting a number of rhetorical functions in succession. The point is that such a rhetoric is consistent with the findings of Yang and Allison (2003). However, it should be said that it does not undermine the quality of the thesis itself.

With regard to the usage of persuasion techniques, the results obtained can be explained on the basis of Hyland's (1998, 2005) stance and engagement perspective, which is focused on the interactional character of scholarly writing. In accordance with this framework, a writer does not merely provide factual information; rather, he

or she positions himself or herself relative to his or her claims and the audience of readers. In turn, the use of such techniques as hedging, boosting, and others enables one to negotiate certainty, credibility, and alignment issues.

As follows from the current study, native speakers show a specific preference for using these techniques to form an epistemically flexible stance. Specifically, the claim can be cautiously introduced using hedging and simultaneously reinforced using boosting, while being additionally placed into the context of earlier research conducted by other scholars. In other words, such a linguistic technique can be regarded as discourse that demonstrates the interactionally constructed position of the writer.

Whereas non-native authors have a tendency to resort to quantification and comparison more often, the former represent means of more direct persuasion. On the one hand, such an approach is definitely an advantage since it guarantees that each claim is backed up with concrete facts. Yet, at the same time, such reliance on quantification and comparison can be considered a drawback as far as the number of rhetorical strategies is concerned, since it prevents native authors from employing some sophisticated means of evaluation.

In light of what is called evaluation theory (Hunston & Thompson, 2000), the differences between the writing styles of native and non-native students can be attributed to the way native and non-native authors express value judgments and stance in their texts. It appears that native authors share value judgments through multiple linguistic tools while non-native students tend to use specific linguistic elements for the purposes of evaluating something.

5. Pedagogical implications (ESP and Academic writing)

The conclusions reached by this study hold valuable insights into the pedagogy of ESP, especially within the fields of science and medicine. Among the most significant insights gleaned from the results of this investigation is that competence in academic writing encompasses far more than just the ability to construct grammatically correct sentences or the capacity to adhere to an established formulaic format. Rather, proficiency in academic writing also entails the ability to exploit rhetorical and pragmatic means in a fluid and contextually appropriate way.

For foreign researchers, this insight implies that pedagogical efforts should extend beyond mere knowledge of the essential features of the research article and the usage of common expressions. Specifically, there should be a stronger emphasis on:

- how various rhetorical devices can be employed in one single discourse
- how persuasive techniques can be applied in crafting complex arguments
- how authors can foster a greater awareness of themselves in their texts

In practice, this might entail activities which would require students to:

- study research papers in reality
- detect rhetorical connections
- practice blending various functions of communication in their writing

It is also necessary to note that the clearer and more structural style characteristic of the foreign language discourse also has educational significance.

Clarity, precision, and transparency are some of the most significant traits of scientific discourse; therefore, they cannot be overlooked while making rhetorical complexities of one's texts. In order for students to learn how to find a balance between these two aspects of discourse production, appropriate skills need to be taught to them.

Conclusion

In this regard, this chapter has offered an extensive interpretation of the organizational pattern of the Discussion sections as well as the utilization of persuasive devices in Results sections of articles on cardiology, written by native and non-native speakers of English. Through a combination of quantitative and qualitative approaches, this chapter aims to transcend descriptive accounts and offer a more profound insight into the nature of academic discourse formation in this specific domain.

The results show that, structurally, there is a high degree of conformity to the conventions of the research article among both native and non-native writers of such works. The occurrence of all three rhetorical moves described by Swales (1990, 2004), Dudley-Evans (1994), and Yang & Allison (2003) illustrates that both categories of writers exhibit considerable knowledge regarding the role of the discussion sections of their articles. As a result, the impact of discipline-specific conventions on the process of academic discourse formation becomes evident.

But the ways in which such moves become embodied in the text prove interestingly different. It seems that native speakers often develop their arguments through a special kind of discourse, in which a number of communicative functions are combined into one act of communication. This means that such rhetorical tasks as interpretation, comparison, explanation, and implications are performed all together, thus contributing to the continuous flow of an argument. In other words, the author leads the audience through a dense network of thoughts, developing them not only sequentially but also holistically.

On the contrary, non-natives appear to write rather linearly, using the sequential structure of their text to demonstrate each rhetorical move separately. Thus, each function is executed in its turn and serves the purpose of proving the author's point in a straightforward way. As a result, this kind of discourse looks rather clear and transparent, allowing readers easily to understand its content and message. However, the separate performance of such functions means that different elements of the argument remain less related than those in native texts.

The similar tendency appears to dominate in analyzing the use of persuasive strategies in Results sections. Despite the fact that both categories of writers depend extensively on quantification, which proves the important role of numbers as a crucial element of science texts, there is an evident difference between the two groups concerning how the latter incorporates numerical data into academic discourse. Namely, native authors utilize quantification together with other modes of evaluation, such as hedging, boosting, and comparison, which contributes to building a multidimensional persuasive model, wherein claims are justified, qualified, and placed within the context (Hyland, 2005). Consequently, the nature of persuasion turns out to be highly dependent on the communicative situation.

Unlike the analyzed sample of native speakers' work, non-native writers are characterized by their strong inclination towards quantification and comparison as main resources used by them to support credibility. Moreover, as it follows from the results of frequency analysis, this tendency concerns not just the quantity of the selected data, but the nature of the chosen strategy, implying that persuasion depends primarily on the clear structure of information.

The conclusions that can be drawn from the above results are that the differences found in academic papers written by native and non-native speakers have nothing to do with lack of knowledge and competence. Instead, it would seem that these differences stem from the various approaches of the two groups to academic writing and that native writers make use of a greater variety of rhetoric and pragmatic devices, combining them in order to create interactions in their papers. On the other hand, non-native writers resort to more obvious techniques that provide for coherence and accuracy but lack complexity.

In this respect, the results obtained show the significance of not only taking into account the rhetorical and linguistic elements present in discourse but also the manner in which they are combined and used in the text. Thus, academic writing in a field such as cardiology implies much more than merely following structures; it is also a question of constructing meanings by means of rhetorical elements.

At the end of the day, what this chapter reveals is that there needs to be a shift towards a more refined method of teaching academic writing within the ESP framework.

The development of skills in scientific writing does not only entail learning how to structure a scientific paper, but also gaining the skills needed in order to express ideas using rhetorically sound language.

General Conclusion

Overview of the study

The current dissertation explored the rhetorical and pragmatic aspects of the language used in research articles written by both native and non-native writers of English in the field of cardiology. To be more precise, the objective of the current study was to analyze the structure of rhetorical moves in the Discussion section and persuasive techniques in the Results section through an interdisciplinary approach which involved genre analysis, move analysis, and pragmatic discourse analysis. The intention of the study was not only to reveal linguistic patterns in the professional discourse of science, but also to shed light on the processes of construction and negotiation of academic knowledge within the discourse community of cardiology.

The need for this study arose as a result of a number of theoretical and methodological limitations found in the existing literature. While genre analysis and academic discourse studies have produced some useful information regarding the structural organization of research papers, most of them have been limited to examining the rhetoric separately from its pragmatic implementation. Similarly, contrastive rhetoric studies have often understood the divergence between the native and non-native writers' discourse in an academic setting within a framework of a negative deficiency approach, treating the difference not as an alternative rhetorical practice but as deviance from the established standards. Moreover, while medical discourse analysis has become increasingly relevant, little attention has been paid to highly specialized fields like cardiology, especially concerning their rhetorical features.

In light of this, the present study followed a comparative approach to analyze the discourse corpus that consisted of twenty research articles related to the field of cardiology published from 2018 to 2023, wherein half of the sample articles were written by native authors while the other half comprised non-native authors. In particular, the Results and Discussion parts of the selected articles were considered because of their importance in developing scientific discourse, interpretation of results, and establishing discipline authority. Based on the theoretical framework

provided by Swales (1990, 2004), Dudley-Evans (1994), Yang and Allison (2003), Hyland (1998, 2005), and Hunston and Thompson (2000), an analysis of rhetoric discourse structure and persuasive strategies was conducted.

Summary of the major findings

From the analysis made in this study, it can be noted that not only native but also non-native writers have a very keen sense of the conventional rules for writing in the field of cardiology. On a macro-rhetorical level, both types of writers consistently used the main moves that were expected in a Discussion section: interpreting results, comparing with other literature, explaining results, clinical significance, and limitations. This proves how conventional academic discourse really is and validates the claims made by genre theorists that academic discourse entails certain communicative conventions.

Nonetheless, despite the fact that both the native authors and the non-native authors showed their awareness of rhetorical conventions in the discipline, considerable divergence was observed in the ways rhetorical strategies were performed and embedded into the discourse. While native authors' texts featured the use of recursive rhetorical structuring, where a variety of communication roles could be observed in one segment of discourse, interpretation, evaluation, citation, explanation, and implication could be seen to work together in a unified argumentation structure.

On the other hand, non-native authorship resulted in a more linear and modular rhetorical pattern. Individual rhetorical steps were usually separated and ordered into sequences in such a way that each communicative function had its own discrete textual location. While this made for clear, explicit, and transparent writing, it generally resulted in less rhetorical integration than was achieved in native authorship. Overall, the rhetoric used by non-native authors seemed more procedural and modular in nature.

The results of this study support the initial hypothesis regarding the use of recursion in rhetorical patterns employed by native and non-native writers. According to this hypothesis, native writers should have used more recursive patterns,

while non-native writers should have favored linear structures in their discourse. It should be emphasized, however, that these differences are not interpreted as deficiencies or inadequacies on the part of the non-native speakers.

Pragmatic analysis of persuasion strategies used in the Results sections confirmed similar distinctions between the two groups of writers. Quantification proved to be the primary persuasive resource employed by both groups, emphasizing the importance of numbers as a key rhetorical tool for scientific communication, especially in empirical scientific disciplines like cardiology. Nonetheless, the role played by quantification differed dramatically from one group to the other.

Quantification was frequently combined with evaluation and interaction markers such as hedging, boosting, comparative constructions, and signposting by native writers. Numbers seldom stood on their own but rather were introduced together with interpretive and evaluative remarks, helping to guide readers' understanding of the data. Discourse produced by native English speakers thus implied a multicomponent approach to persuasion where certainty was carefully negotiated against caution.

For non-native speakers, on the other hand, the primary techniques of persuasive speech were more likely to be quantification, comparative frame, and signposting. Their use of persuasive speech tended to be based on the objective and transparent nature of the data provided in their discourse. In spite of their effectiveness, those techniques had much less of rhetorical elasticity and evaluative dimension compared to techniques used by native speakers. Persuasive speech, accordingly, was more likely to be achieved with the help of structural elements and quantitative evidence rather than negotiation and evaluation.

The normalized frequency analysis showed, however, that the differences between native and non-native speakers' discourse were not only due to varying text lengths. For native speakers, the persuasive techniques appeared to be evenly distributed, meaning the authors tended to use several persuasive techniques at once. In case of non-native speakers, the techniques were more concentrated, meaning that

non-native speakers preferred using structural elements and quantitative evidence as their primary means of persuasion.

Contributions of the study

The primary contribution of this study comes from the fact that the researcher tries to establish a link between rhetorical move analysis and pragmatic discourse analysis. While earlier researchers have focused upon only one aspect or another of the above-mentioned concepts, the current dissertation establishes that rhetoric and persuasion go hand in hand and are inseparable. Therefore, an attempt is made to integrate both aspects in order to get a better grasp on the topic under discussion. It is for this reason that the current dissertation provides a useful contribution to the literature related to genre analysis, academic discourse studies, and ESP.

In addition, the dissertation makes an invaluable contribution to medical discourse studies, since it examines the domain of cardiology, a very specific field which has not attracted much scholarly interest in genre studies. The results will thus help us gain a better appreciation of variation across scientific disciplines and underscore the significance of contextual considerations in academic writing studies.

Another significant contribution is related to the issue of native and non-native writing. Instead of treating non-native writing as inferior or deficient in comparison to native writing, the study acknowledges rhetorical differences as an inevitable result of dissimilar educational and cultural backgrounds. This approach becomes especially relevant against the backdrop of globalization in scientific publication, where researchers from various linguistic and cultural backgrounds contribute to the development of science.

Pedagogically speaking, the findings of this study have considerable implications for ESP instruction and academic writing skills development in scientific and medical fields. As indicated by the results obtained during the analysis, academic writing skills training cannot solely focus on providing students with an

opportunity to learn about various formulaic structures used in such texts or to practice writing grammatically correct sentences. Rather, learners must also be instructed in their ability to develop rhetorical integration competence and evaluative positioning skills in order to become able to demonstrate persuasive flexibility in scientific papers.

Indeed, as a method of ESP instruction, corpus-based practice might prove useful because it allows the identification and implementation of authentic academic writing procedures including the interrelationship between rhetorical moves and persuasive techniques as well as a combination of various linguistic communicative functions. However, at the same time, it is critical to note that despite all the shortcomings, non-native writing practices are characterized by certain benefits which are clarity and transparency. Thus, the purpose of ESP instruction in such a case would not include imitating native academic discourse patterns but developing rhetorical flexibility skills instead.

Limitations of the study

While the results obtained by means of this study contribute to the existing body of knowledge in the field, this research project cannot be considered complete in itself since some of its aspects should still be addressed.

First, even though the number of texts analyzed in this paper provides adequate material for both qualitative and quantitative analyses, it is rather small compared to the large amount of articles in the field of cardiology that are published worldwide.

Second, even though the division of the studied writers into natives and non-natives was quite useful from the perspective of methodological considerations, it cannot fully represent the diversity of modern writers whose languages can no longer be described as single.

Third, while the analysis was centered around Results and Discussion parts of papers, their other parts – Introductions and Methods – should be subjected to analysis as well. Moreover, this study concerned only written language; thus, the

analysis of other varieties of academic English such as spoken academic language remains topical for future investigation.

Finally, since discourse analysis implies interpretation of various facts, there always stays a place for subjective perception.

Recommendations For further Research

Considering the limitations of the present study, further investigations can be conducted by extending the scope of the current analysis in several ways. Firstly, other medical specialties can be considered by analyzing larger and more heterogeneous corpus of data in order to clarify whether rhetorical patterns discovered for cardiology are specific for this field or they are typical of science in general.

Secondly, longitudinal analysis could help researchers learn about the change in rhetorical patterns over time in cases when foreign scholars become active participants of international academic communities. Such analysis could yield interesting information on rhetorical adaptation, disciplinary acculturation, and identity construction in scholarly discourse.

Thirdly, future studies might consider the use of other research instruments such as interviews or questionnaires as well as qualitative approaches including ethnography as a means of getting access to writers' perceptions of rhetorical strategies and disciplinary conventions.

Moreover, the consideration of various pragmatic and rhetorical means which were not fully studied in the current paper could contribute to further investigations in the field.

Lastly, pedagogically focused research may focus on evaluating the impact of genre-focused and pragmatically based instruction in enhancing the skills of non-native speakers in writing academic papers. Such research will be instrumental in

devising effective approaches to teaching ESP in response to the communicative needs of scientific international publications.

Final concluding statement

To conclude, the current thesis proves that academic writing in the field of cardiology is much more than an impartial means of communicating scientific information. It actually embodies a sophisticated form of rhetoric and social practice in which knowledge is created, negotiated, and validated in a specific discourse community.

From the results of the analysis conducted in the course of the study, it becomes clear that while native speakers and non-native speakers have the same knowledge about the norms in the discipline, there is a striking difference between them when it comes to the rhetoric and pragmatics involved in organizing and legitimating knowledge

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Appendices

Appendix A

Analysis Tables of the Rhetorical Structure of Native-English Research Article Discussion Sections

Table A 01

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps
Move 1: Restating Study Purpose and Principal Findings	Summarize the trial purpose, population, and key outcomes	“the risk of the primary composite outcome...was lower in the dapagliflozin group than in the placebo group” / “dapagliflozin was as effective in the 55% of patients without type 2 diabetes as in those with diabetes”	Clear and concise statement of major results; explicitly highlights novelty (benefits in non-diabetic patients). Native-like emphasis on clinical significance (“substantial and clinically significant”).
Move 2: Interpretation of Main Results	Explain meaning and clinical relevance of outcomes	“demonstration of the cardiovascular benefits of an SGLT2 inhibitor in patients without diabetes provides support for prior suggestions that such treatment has beneficial actions other than glucose lowering”	Provides mechanistic and clinical interpretation; integrates prior literature. Hedging is minimal but appropriate.
Move 3: Explanation of Subgroup or Unexpected Findings	Discuss heterogeneity and subgroup differences	“less treatment benefit in patients in NYHA functional class III or IV than in class II” / “other subgroups...were not consistent with the finding regarding NYHA class”	Addresses variability across subgroups; cautious interpretation avoids overgeneralization. Could expand on potential reasons for heterogeneity.
Move 4: Comparison with Previous Studies	Situate findings relative to prior trials	“our population was distinct from the patients in previous trials...at much higher risk for hospitalization for heart failure” / “baseline use of sacubitril–	Highlights differences from prior studies and justifies importance of findings. Strong native-like contextualization; acknowledges limitations

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps
		valsartan...was low”	of generalizability.
Move 5: Mechanistic Explanation / Underlying Processes	Explain potential physiological mechanisms and clinical rationale	“postulated mechanisms of action of SGLT2 inhibition and neprilysin inhibition are distinct” / “neither of these adverse effects was common”	Mechanistic discussion is concise; effectively integrates safety outcomes with clinical interpretation. Could include more detailed molecular explanations, but sufficient for clinical audience.
Move 6: Clinical Implications	Emphasize practical significance for treatment	“those who received the SGLT2 inhibitor dapagliflozin had a lower risk of worsening heart failure or death...regardless of the presence or absence of diabetes”	Clearly states actionable implications; highlights relevance across patient subgroups. Native-like integration of evidence to support therapeutic recommendations.
Move 7: Strengths, Limitations, and Validity	Critically evaluate study design and external validity	“We used specific inclusion and exclusion criteria...which may have limited generalizability” / “Less than 5% of the patients were black...few were very elderly”	Limitations are well-articulated, including external validity, sample diversity, and baseline treatment variation. Robust native-style discussion of potential biases and generalizability concerns.

Table A 02

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps
Move 1: Restating Study Purpose and Principal Findings	Summarize study aim, population, and key outcomes	“Our meta-analysis explored the therapeutic potential of dapagliflozin in AHF by examining data from five randomized controlled trials, encompassing 912 patients” / “Our findings reveal dapagliflozin shows promise in reducing In-Hospital Cardiovascular mortality, hospital readmissions, and weight in AHF”	Clear articulation of the purpose and primary findings. Native-like emphasis on clinical relevance and safety.
Move 2: Interpretation of Main Results	Explain significance of outcomes	“Overall, dapagliflozin demonstrated beneficial effects compared to alternative treatments” / “Dapagliflozin exerts a significant impact on both heart failure and renal function, influencing multiple physiological pathways”	Provides clinical and mechanistic interpretation. Addresses multiple endpoints (mortality, readmissions, weight). Native-like synthesis of effects.
Move 3: Comparison with Prior Literature / Evidence	Situate findings relative to previous studies	“Various studies have explored the impact of dapagliflozin on mortality rates in patients with heart failure...research consistently indicates that dapagliflozin is linked to a reduced risk of mortality” / “Our findings were consistent with previous research regarding readmissions and weight reduction”	Strong integration of prior research. Explicitly compares outcomes to previous findings, highlighting both concordance and discrepancies.
Move 4: Mechanistic Explanation / Underlying	Explain physiological or pharmacological rationale	“Dapagliflozin enhances diuresis, optimizes ventricular loading conditions...reduces	Detailed explanation of mechanisms. Native-like integration of

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps
Processes		preload...influences adipose tissue distribution, decreases arterial stiffness and blood pressure, and promotes cardiac and lipid metabolism”	pharmacological and physiological rationale.
Move 5: Subgroup Analysis / Heterogeneity	Discuss variability across outcomes or patient groups	“This benefit was more pronounced in patients with severe heart failure and diabetes, although non-diabetic patients and those with milder disease also experienced advantages” / “Heterogeneity in our findings, particularly regarding weight change and GFR endpoints...underscores the need for adjustments”	Addresses differences across subgroups and outcomes. Provides insight into variability and contextual interpretation.
Move 6: Clinical Implications	Highlight therapeutic relevance and practical applications	“These effects help prevent acute decompensation post-discharge, a common cause of early readmissions” / “Weight reduction can be attributed to dapagliflozin’s diuretic effects...beneficial in heart failure management as it reduces the workload on the heart”	Strong emphasis on practical significance and patient management. Native-like linking of mechanisms to clinical benefits.
Move 7: Limitations and Directions for Future Research	Critically evaluate study design and propose next steps	“The small sample size may compromise the robustness and generalizability...lack of adequate studies precluded meta-regression...unable to evaluate adverse events or cost-effectiveness...future research should focus on larger studies...different dosages”	Well-articulated limitations and explicit recommendations for future research. Native-like acknowledgment of study constraints and gaps.

Table A 03

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Background / Restating the Study Purpose and Main Findings	Restate the aim and summarize key results	“In this post-hoc sub-study... we investigated the effect of empagliflozin...” / “Our findings demonstrate that...”	Very strong and explicit restatement; typical of native biomedical writing. Purpose and main outcome are clearly foregrounded at the opening of the Discussion.
Move 2: Interpretation of Results	Explain the meaning of findings	“SGLT2 inhibitors, beyond glucose-lowering effects, have important cardio-renal benefits...”	Interpretation is cautious and balanced; appropriate hedging (“did not have an impact”). Native-like integration of mechanistic explanation.
Move 3: Comparison with Previous Studies	Compare findings with earlier research	“Studies which have directly measured...” / “This contrasts with the results from other groups...”	Extensively developed and well-supported with citations. This move is dominant, which is typical in native cardiology discussions.
Move 4: Explanation of Agreements / Discrepancies	Explain similarities or differences with previous findings	“This difference was apparent at day 1...” / “Unexpectedly, sacubitril/valsartan resulted in...”	Explanations are nuanced and contextualized (population differences, methods, HF status). Strong causal and contrastive reasoning typical of native expert writing.
Move 5: Significance / Implications of Findings	Highlight clinical or theoretical implications	“LA size and function... have emerged as surrogate markers of interest...”	Implications are embedded rather than explicitly signposted. Native writers often integrate implications implicitly within literature discussion rather than isolate them.
Move 6: Limitations	Acknowledge weaknesses of the	“The sample size was relatively small...” / “may be	Limitations are clearly stated, specific, and appropriately hedged. Balanced by reference to similar

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
	study	subject to type II error...”	study durations—very native-like rhetorical mitigation.
Move 7: Strengths, Recommendations, and Future Directions	Emphasize strengths and suggest future research	“To our knowledge, our study is the first...” / “this finding should be seen as hypothesis generating...”	Strengths are explicitly highlighted, enhancing credibility. Future research is implied rather than directly instructed, which aligns with native academic restraint.

Table A 04

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Background / Restating the Central Issue	Introduce the main phenomenon and contextualize the problem	“HF hospitalization typically represents just under half of all hospitalizations in HF trials...”	Clear contextual opening without explicit restatement of study aim; typical for large meta-analytic or methodological discussions authored by native experts.
Move 2: Interpretation of Findings	Explain patterns and meaning of results	“Treatment effects on HF hospitalization are strongly associated with effects on all-cause hospitalization...”	Interpretation is highly analytical and statistically grounded; extensive use of quantified interpretation reflects native academic confidence and precision.
Move 3: Comparison with Previous Evidence	Compare findings with external data and trials	“In a US community study... only 12.6% of all hospitalizations...” / “Other examples from the literature include...”	Strong comparative framing across trials, populations, and study types; citations are used strategically to generalize findings beyond the dataset.
Move 4: Explanation of Relationships and Discrepancies	Explain why effects differ across outcomes or trials	“This may be because the former trial... had a greater burden of non-HF causes of hospitalization...”	Exceptionally well-developed explanatory reasoning; links epidemiology, trial design, and patient phenotype—hallmark of native high-impact writing.
Move 5: Methodological and Practical Implications	Discuss implications for research design, interpretation, and practice	“Using HF hospitalization to infer treatment effects on all-cause hospitalization is subject to the same principles governing the relationship between surrogate and true outcomes.”	Implications are explicit and theoretical; strong emphasis on surrogate validity reflects advanced disciplinary awareness common in native-authored methodological discussions.
Move 6: Limitations / Sources of	Acknowledge uncertainty and	“The use of a surrogate outcome involves 3 main	Rather than listing study limitations, uncertainty is conceptualized

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Uncertainty	constraints	sources of uncertainty..."	methodologically; this abstract treatment is typical in native meta-research writing.
Move 7: Recommendations and Policy-Oriented Conclusions	Propose solutions and future directions	"These problems are readily rectifiable by funding entities, regulatory agencies, and medical journals..."	Strong directive stance toward regulators and journals; native writers more frequently adopt an authoritative policy voice, which is rare in non-native texts.

Table A 05

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Restating Study Purpose and Main Findings	Summarize study design and principal results	“This meta-analysis presents the comprehensive pooled data from 10 contemporary large, placebo controlled RCTs. The major findings include the following...”	Very explicit and enumerative opening (First, Second, Third...); common in native meta-analyses, though slightly more report-like than interpretive.
Move 2: Interpretation of Key Results	Interpret magnitude and significance of findings	“SGLT2-I use was associated with decreased risk of cardiovascular death or HHF by 33%...”	Interpretation is strongly quantitative; emphasis on effect size, NNT, and statistical significance reflects native epidemiological rigor. Limited evaluative language beyond statistics.
Move 3: Comparison with Previous Studies	Situate findings within existing literature	“These results are consistent with those reported by Butler et al...” / discussion of SCORED, CREDENCE, CANVAS, DECLARE-TIMI	Extensive comparison with individual trials; well-cited and systematic. Native-like synthesis across heterogeneous studies.
Move 4: Explanation of Variability and Subgroup Differences	Explain differences across trials and subgroups	“This finding is likely owing to the increased power of this meta-analysis...” / subgroup analyses by sex, age, race	Clear causal reasoning (power, sample size, population risk). Some explanations remain inferential, but hedging is appropriate and native-like.
Move 5: Clinical and Public Health Implications	Highlight practical, clinical, and societal relevance	“This finding suggests that there may be an overall benefit of SGLT2-Is...” / economic burden of HF	Implications are strongly emphasized, including cost and public health burden—typical of high-impact native discussions in cardiology.
Move 6: Limitations / Non-beneficial	Address outcomes without benefit	“There was no difference in outcome for acute MI...” / “These mechanisms... will not	Limitations are framed mechanistically rather than methodologically. Lack of

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Outcomes	and scope limits	be relevant in the pathophysiology of acute ischemia”	explicit meta-analysis limitations (e.g., publication bias, heterogeneity) is a minor rhetorical gap by native standards.
Move 7: Mechanistic Explanation and Safety Considerations	Provide biological rationale and safety profile	“The cardiac benefits of SGLT2-Is have been hypothesized to be due to several mechanisms...”	Mechanistic depth is strong and well-integrated. Safety discussion strengthens credibility. Future research is implied rather than explicitly recommended, which is acceptable in native meta-analyses.

Table A 06

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Restating Study Purpose and Main Findings	Present study aim, design, and headline results	“In the present meta-analysis of 10 studies... we evaluated the effects of early administration of SGLT2 inhibitors...”	Clear and explicit restatement of purpose and findings. Slightly dense opening sentence and some lexical issues (“discrepancy”) reflect mild non-native editing weaknesses, but rhetorically appropriate.
Move 2: Interpretation of Primary Outcomes	Explain meaning and direction of key results	“Our frequentist approach indicated a significant reduction in HHF...” / “This discrepancy highlights the importance of employing multiple statistical methods...”	Strong interpretive framing, especially methodological reflection. Explicit meta-methodological commentary is advanced and native-like, though occasionally over-explicit.
Move 3: Comparison with Previous Studies	Situate findings within existing literature	“Notable trials such as EMPA-REG outcome...” / “a recently published meta-analysis...”	Well-developed and well-cited. Literature is integrated logically, though some repetition of trial names could be condensed for rhetorical efficiency (native texts are often more economical).
Move 4: Explanation of Differences and	Explain discrepancies across methods, designs,	“This discrepancy may arise from Bayesian methods incorporating prior uncertainty...” / RCT	This move is very strong. Clear causal explanations, appropriate hedging, and statistical reasoning.

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Subgroup Effects	and populations	vs PSM differences	Fully aligns with native expert discourse in meta-analytic writing.
Move 5: Implications and Clinical Relevance	Highlight clinical significance and applicability	“These findings support the broader application of SGLT2 inhibitors...”	Implications are present and cautiously framed. Some statements lean toward promotion (“support broader application”)—native texts often soften such claims further in meta-analyses.
Move 6: Non-significant Findings and Outcome Boundaries	Address null results and outcome-specific limits	“We found no benefit... in reducing all-cause or CV-related deaths...” / MI and stroke outcomes	Appropriately balanced and explanatory. Clear acknowledgment of trial duration, population risk, and power limitations—native-like handling of null results.
Move 7: Strengths, Limitations, and Future Directions	Acknowledge strengths, limitations, and research needs	“To the best of our knowledge, this is the first systematic review...” / “Our study suffers from the limitation...”	Explicit and well-structured strengths and limitations section. Slight repetition and phrasing (“suffers from the limitation”) reflects non-native stylistic influence, but content and rhetorical function are fully realized.

Table A 07

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Restating Study Purpose and Principal Findings	Present study novelty, scope, and headline results	“To our knowledge, this was the first summary of available evidence...447,202 participants...” / “early rhythm control initiation produced significant relative risk reductions...”	Strong and confident opening; emphasizes novelty, large sample size, and key outcomes. Fully native-like rhetorical positioning.
Move 2: Interpretation of Findings	Explain the clinical meaning of results	“potentially suggesting that early rhythm-control treatment could be considered in real-world clinical settings.”	Interpretation is cautiously optimistic, appropriately hedged (“potentially”). Matches native norms for translational relevance.
Move 3: Comparison with Previous Studies	Situate findings within prior research	“the PIAF trial...” / “AFFIRM trial...” / “EAST-AFNET 4 trial...”	Exceptionally well-developed comparative review. Chronological framing (past → recent trials) reflects mature native academic storytelling.
Move 4: Explanation of Agreements and Discrepancies	Explain why earlier and current findings differ	“Until the advent of the EAST-AFNET 4 trial...” / discussion of timing of rhythm control	Strong causal reasoning linking timing of intervention to outcomes. Explicit contrastive markers (“However,” “Nevertheless”) are effectively used.
Move 5: Mechanistic and Treatment-Strategy Implications	Explain how and why early rhythm control may work	“delays in sinus rhythm restoration might lead to atrial electrical, contractile, and structural remodeling...”	Mechanistic explanation is integrated smoothly. Native writers often embed mechanisms mid-discussion rather than isolate them.
Move 6: Methodological	Account for variability across	“follow-up duration, anticoagulation, rate control, and	Very strong methodological reasoning. Explicit explanation of

Differences and Sources of Heterogeneity	studies	rhythm control strategies differ...”	heterogeneity and sensitivity analysis aligns with best native meta-analytic practice.
Move 7: Consolidation, Strengthening Claims, and Analytical Closure	Reinforce conclusions after adjustments	“after omitting the AFFIRM substudy...heterogeneity was greatly reduced...”	Effective rhetorical closure: strengthens main claim through sensitivity analysis rather than repetition. No explicit ‘limitations’ section, but limitations are embedded implicitly—acceptable in native writing.

Table A 08

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Restating Study Purpose and Main Findings	Summarize study design, scope, and principal results	“In this large prospective cohort study of UK adults...” / “Participants reporting 30% of VPA appeared to experience the lowest risks...”	Clear and concise opening with quantified results and novelty claim. Fully aligns with native epidemiological discussion norms.
Move 2: Interpretation of Findings	Explain the meaning and direction of results	“Participants performing 150–300 min of MPA and ≥ 150 min of VPA per week had the lowest risks...”	Interpretation is cautious and data-driven. Slight repetition of findings before deeper interpretation, but rhetorically acceptable.
Move 3: Comparison with Previous Studies	Situate findings within existing literature	“which was generally in line with previous studies...” / discussion of US, Australian, and cohort studies	Very well-developed comparison section. Extensive citation and synthesis reflect strong native academic practice.
Move 4: Explanation of Agreements and Discrepancies	Explain why findings align or differ from prior studies	“The reason might be that high levels of VPA was positively associated with oxidative stress...”	Clear causal explanations with appropriate hedging (“might”). Native-like reasoning linking physiology and outcomes.
Move 5: Mechanistic and Population-Specific	Explain biological mechanisms and subgroup patterns	“VPA might increase peak oxygen uptake...” / differences by age and smoking status	Strong integration of mechanism and subgroup interpretation. Native writers often embed subgroup

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Implications			explanations in this manner.
Move 6: Boundaries and Contextual Limitations	Acknowledge contextual constraints and heterogeneity	“The inverse association was less obvious among older adults...”	Limitations are implicit rather than explicitly labeled. Acceptable in native writing, though a short explicit limitations sentence could strengthen rigor.
Move 7: Implications and Directions for Policy and Research	Highlight public health relevance and future research needs	“guideline on physical activity should be specified for target population...”	Clear translational implication and call for further epidemiological research. Slight grammatical imprecision (“target pollution”) suggests minor non-native editing, but rhetorical function is fully realized.

Table A 09

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Move 1: Restating Study Context and Main Findings	Re-establish study focus and summarize principal outcomes	“this study showed notable reductions in both the number and rates of ASCVD-related hospitalizations...”	Strong contextualized opening linked to COVID-19 timeline. Native-like framing using temporal contrast (pre-pandemic vs. lockdown).
Move 2: Interpretation of Findings	Explain the meaning and implications of results	“suggests that the COVID-19 pandemic and associated public health measures adversely impacted clinical management...”	Interpretation is cautious and logically inferred. Appropriate hedging (“suggests”) reflects native academic stance.
Move 3: Comparison with Previous Studies	Relate findings to earlier national and international studies	“Similarly, a previous study conducted in Alberta...” / “An Ontario-based study observed...”	Extensive and well-integrated literature comparison. High conformity with native epidemiological Discussions.
Move 4: Explanation of Causes and Discrepancies	Account for unexpected or contrasting results	“One could hypothesize that the increase...may be due to a change in the severity of patients presenting...”	Hypotheses are explicitly marked as speculative. Clear acknowledgment that causality cannot be proven—very strong native rhetorical control.
Move 5: Methodological and System-Level Interpretation	Explain patterns using healthcare system dynamics	“reduced coronary revascularization procedures...” / “elective procedures were not slowed down...”	Sophisticated system-level reasoning. Explicit differentiation between elective vs. urgent care strengthens analytical depth.
Move 6: Broader Contextualization and Future	Situate findings within wider healthcare trends and suggest future studies	“Future research could extend this study...” / discussion of subsequent COVID waves	Clear forward-looking orientation. Native Discussions often embed future research within

Move	Communicative Function	Example(s) from the Discussion	Comments / Notes / Gaps (vs. Native Norms)
Research Directions			contextual explanation rather than isolate it.
Move 7: Strengths, Limitations, and Generalizability	Evaluate study robustness and constraints	“limitations should be considered...” / administrative data, mortality capture, generalizability	Explicit, detailed limitations section—textbook native structure. Balanced presentation of strengths and weaknesses enhances credibility.

Table A 10

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps (vs. Native Writing)
Move 1: Restating Study Purpose and Principal Findings	Reaffirm originality and summarize key outcomes	“this study was the first to evaluate the association between BMQ scores and self-reported medication adherence...”	Clear claim of novelty (“first to evaluate”) is a strong native-like opening. Main findings are concisely summarized without overstating causality.
Move 2: Interpretation of Main Results	Explain meaning of findings and internal trends	“participants’ beliefs in the necessity... outweighed their concerns” / “beliefs were positive and fairly stable”	Interpretation is cautious and supported by internal consistency across measures (BMQ, NCD, MARS-5). Appropriate hedging (“suggest”, “unclear”).
Move 3: Explanation of Specific Changes and Non-significant Results	Account for small changes or borderline effects	“whether this decrease would predict a decline in adherence is unclear...”	Native-like treatment of borderline significance; avoids overinterpretation and explicitly acknowledges uncertainty.
Move 4: Comparison with Previous Studies	Situate findings within existing literature	“similar to those in a previous study...” / comparison with Norwegian study	Comparisons are balanced; agreement and divergence are both acknowledged. Minor gap: limited theoretical explanation for cross-study discrepancies.
Move 5: Sociodemographic Interpretation	Interpret subgroup differences	“South Asian and Middle Eastern ethnic origin held stronger beliefs...”	Culturally sensitive interpretation aligned with native public-health discourse. Explicit acknowledgement of sampling bias strengthens credibility.
Move 6: Clinical Implications	Highlight practical relevance and propose	“potential unmet need for interventions...” / pharmacist-led	Strong applied orientation. Native Discussions often integrate intervention literature

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps (vs. Native Writing)
and Future Directions	interventions	interventions	exactly this way. Future research directions are clearly articulated.
Move 7: Strengths, Limitations, and Validity	Critically evaluate study design and generalizability	“this study utilized a prospective, observational design...”	Very comprehensive limitations section. Addresses internal validity, external validity, measurement, selection bias, and attrition—highly native-like.

Appendix B

Analysis Tables of the Rhetorical Structure of Non- Native-English Research Article Discussion Sections

Table B 01

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps (vs. Native Writing)
Move 1: Restating Study Purpose and Principal Findings	Summarize study design, population, and key outcomes	“This large, multinational, multicenter study from the Arabian Gulf region demonstrates that... NSTEMI patients who had undergone PCI/CABG... were 17.4% significantly less likely to experience MACE events”	Strong opening with scope (large, multinational) and clear quantitative outcomes. Native-like emphasis on effect sizes and follow-up duration.
Move 2: Interpretation of Main Results	Explain clinical meaning of findings	“Specifically... less likely to suffer stroke/TIA, die, and be readmitted for any cardiac reason”	Interpretation is outcome-focused and clinically grounded. Slight tendency toward result repetition rather than deeper mechanistic interpretation (minor gap).
Move 3: Comparison with Prior Literature	Situate findings within existing evidence	“Our observations largely align with the outcomes of a meta-analysis...” / comparison with TIMACS, VERDICT, registry data	Extensive and well-structured literature comparison. Native-like strategy of explaining discrepancies (follow-up duration) strengthens credibility.
Move 4: Explanation of Discrepancies / Contextualization	Account for differences across studies or subgroups	“could be due to the differences in follow-up periods...” / “mean GRACE	Appropriate causal hedging (“could be due to”). Uses risk

Move	Communicative Function	Evidence from the Discussion	Comments / Notes / Gaps (vs. Native Writing)
		scores around 130”	stratification context effectively. Matches native academic norms.
Move 5: Regional and Practice-Based Interpretation	Discuss real-world practice patterns and implications	“only 29.1% of the patients underwent revascularization...”	Strong practice-oriented reflection. Native-like critical discussion of healthcare system factors. Raises unanswered questions without overclaiming.
Move 6: Mechanistic / Pathophysiological Justification	Provide biological rationale for observed benefits	Paragraph on myocardial viability and ventricular remodeling	This move is present but slightly over-extended. Native Discussions often integrate this explanation more concisely or link it directly to study outcomes.
Move 7: Limitations and Methodological Constraints	Acknowledge study weaknesses and data gaps	“observational studies are limited...” / missing CV mortality, stroke subtype, angiographic data, event timing	Very comprehensive limitations section. Native-like transparency. Explicit justification of loss to follow-up strengthens methodological rigor.

Table B 02

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes core outcomes	“Therefore, our study aimed to assess the characteristics of HFrEF and HFmrEF patients... Our findings indicated that only 70.5%, 88.6%, and 56.6%...”	✓ Purpose and findings are clearly restated. □ Overly long and data-heavy; native discussions usually provide a concise synthesis rather than extended numerical listing.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“These findings highlight the need to improve adherence to guideline recommendations... This discrepancy... can negatively impact patients’ quality of life, symptoms, and survival.”	✓ Interpretation is present and relevant. □ Interpretation remains general; native writers often emphasize <i>novelty</i> or <i>contribution</i> more explicitly.
Move 3 – Comparison with previous studies	Compares results with earlier research	“Lower than Al-Aghbari et al. (2022)... higher than Hanbali et al. (2020)... lower than Gulf DYS-PNEA registry...”	✓ Extensive and appropriate comparisons. □ Comparisons are mostly descriptive; limited evaluative framing (e.g., “extends,” “challenges,” “confirms”).
Move 4 – Explanation of similarities / discrepancies	Explains reasons for agreement or divergence	“May have less knowledge... prioritize symptom relief... doctors’ hesitation to raise the dose...”	✓ Plausible explanations provided. □ Heavy reliance on speculation (“may have”); native discussions tend to

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
			balance speculation with evidence or stronger hedging strategies.
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Draws clinical and regional implications	“Strategies should be implemented... HF management programs... This study highlights the critical issues of underutilization...”	✓ Strong practical and regional relevance (Palestine). □ Implications are repeated across several paragraphs; native writing usually consolidates implications more tightly.
Move 6 – Mechanistic or theoretical explanation	Provides underlying clinical or conceptual mechanisms	“Doctors’ hesitation to raise the dose of β -blockers due to concerns about hypotension...”	✓ Mechanistic reasoning is present. □ Limited depth; native discussions often elaborate physiological or system-level mechanisms more fully.
Move 7 – Limitations and future directions	Acknowledges weaknesses and suggests future research	“Retrospective design limits its conclusions... More investigation is required...”	✓ Clear and explicit limitations. □ Limitations are lengthy and placed very late; native discussions often integrate future research directions more strategically.

Table B 03

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
Move 1 – Restating purpose & principal findings	Restates aim and summarizes key outcomes	“This is the only study in the Arabian Gulf to have evaluated the association between NSAIDs use and the development of MACE... patients on prior use of NSAIDs were associated with increased risk of stroke/TIA events and readmissions...”	✓ Clear statement of novelty and principal findings. □ Findings are repeated verbatim later (Conclusion), leading to redundancy rather than synthesis.
Move 2 – Interpretation of main results	Interprets the significance of findings	“NSAIDs use was not associated with increased MI or all-cause mortality rates...”	✓ Interpretation is present. □ Interpretation is mostly descriptive; lacks evaluative framing (e.g., clinical relevance, risk stratification).
Move 3 – Comparison with previous studies	Compares findings with existing literature	“Similar to the current findings, a number of other meta-analyses and review articles have also reported...”	✓ Appropriate and relevant comparison. □ Comparisons are brief and limited to agreement; native discussions often balance agreement and contrast.
Move 4 – Explanation of similarities / discrepancies	Explains observed results and inconsistencies	“Potential mechanisms... vasoconstriction... hypertension... thrombosis...”	✓ Mechanisms are explicitly described. □ Explanations are list-like and not integrated into a coherent causal narrative, which is more typical in

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
			native writing.
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Draws implications for practice and region	Implicit: “patients with ACS in the Arabian Gulf”	□ Implications are largely implicit rather than explicitly stated. Native discussions usually articulate clinical caution, prescribing guidance, or policy relevance more directly.
Move 6 – Mechanistic or theoretical explanation	Provides biological/pathophysiological rationale	“Inhibition of prostacyclin-induced vasodilation... renal effects on sodium excretion... platelet aggregation”	✓ Strong mechanistic content. ✓ This move is relatively well developed compared with other sections. □ Could be linked more explicitly to ACS vulnerability.
Move 7 – Limitations and future directions	Acknowledges study limitations	“This study did not document the actual types of NSAIDs used... did not report the duration of use...”	✓ Limitations are clearly identified. □ Future research directions are implied but not explicitly stated (e.g., need for stratified NSAID analysis).

Table B 04

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
Move 1 – Restating purpose & principal findings	Establishes study scope, population, and main observations	“The Eastern Mediterranean (EMR) region... comprises 22 countries...”, “Our study’s observations support that the EMR individuals with premature ACS have higher prevalence of obesity and smoking...”	□ Purpose is not explicitly restated at the outset. Native discussions usually begin with a concise sentence summarizing the study aim and principal findings before providing regional background.
Move 2 – Interpretation of main results	Interprets patterns observed in the data	“Our data point to no significant differences in plasma lipid parameters...”, “This could be explained by the ubiquitous belief of the feminine higher risk of bleeding...”	✓ Interpretation is present. □ Interpretations are scattered and fragmented; native writing tends to cluster interpretation immediately after findings for coherence.
Move 3 – Comparison with previous studies	Compares results with existing registries and literature	“Consistent with GRACE, Gulf RACE, Gulf RACE-2 and INTERHEART...”, “in contrast to the results of the INTERHEART study...”	✓ Strong and frequent use of comparative literature. □ Comparisons are sometimes repetitive and not always explicitly linked back to the current study’s contribution.
Move 4 – Explanation of similarities / discrepancies	Explains agreements or contradictions with other studies	“This could be explained with evolving stressful life...”, “on the contrary to the results of the INTERHEART study...”	✓ Explanations are attempted. □ Explanations are often speculative and introduced without clear

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
			linguistic hedging (e.g., <i>may</i> , <i>might</i>), which is typical of native academic prose.
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Highlights regional and public-health implications	“These alarming rates urge for adopting novel methods to control smoking...”, “This is worrisome as abdominal adiposity is closely linked to...”	✓ Regional public-health relevance is emphasized. □ Clinical implications are broad and descriptive; native discussions often translate findings into clearer policy or practice recommendations.
Move 6 – Mechanistic or theoretical explanation	Provides sociocultural or biological explanations	“Urbanization and modernization... shifting from the eastern diet...”, “abdominal adiposity is closely linked to insulin resistance...”	✓ Sociocultural and biological mechanisms are discussed. □ Mechanisms are not clearly separated from descriptive epidemiology, leading to rhetorical blending of moves.
Move 7 – Limitations and future directions	Acknowledges study limitations	“The current study is not without limitations... observational nature... lack of reporting in-hospital outcomes...”	✓ Limitations are clearly stated and detailed. □ Future research directions are minimal and implicit; native discussions usually include explicit prospective recommendations.

Table B 05

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes main findings	“This is one of the few studies that analyzed the predictors of in-hospital mortality...”, “The identified predictors were similar to those reported from large AMI registries...”	✓ Purpose and scope are stated early. □ Principal findings are implied rather than concisely summarized; native discussions usually provide a brief, explicit synthesis of key predictors in one sentence.
Move 2 – Interpretation of main results	Interprets significance of findings	“Older age has been a consistent predictor of mortality...”, “Heart failure and low ejection fraction (<35%) were also shown to be consistent predictors...”	✓ Interpretation is clear and logically developed. □ Interpretation is heavily literature-driven, with limited emphasis on the study’s own analytical contribution.
Move 3 – Comparison with previous studies	Compares results with earlier registries and studies	“Goldberg et al...”, “EuroHeart survey...”, “CRUSADE and EuroHeart studies...”, “GRACE registry...”	✓ Strong alignment with international literature. □ Comparisons dominate the discussion; native texts usually balance comparison with synthesis and implication.
Move 4 – Explanation of similarities / discrepancies	Explains why findings align with prior evidence	“Multiple reasons have been proposed...”, “Elderly people are expected to have more extensive coronary disease...”	✓ Reasoned explanations are provided. □ Explanations are largely borrowed from prior studies rather than framed as interpretations

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
			grounded in the current dataset.
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Highlights clinical relevance	References to ESC guidelines, revascularization practices, and risk stratification	□ This move is underdeveloped. Native discussions typically draw clearer implications for local clinical practice, healthcare policy, or risk management.
Move 6 – Mechanistic or theoretical explanation	Provides pathophysiological rationale	“More extensive coronary disease...”, “less likely to receive intensive management...”	✓ Mechanistic reasoning is present. □ Mechanisms are briefly stated and not expanded; native discussions often integrate mechanisms more analytically.
Move 7 – Limitations and future directions	Acknowledges limitations and proposes future research	—	□ Absent in the provided excerpt. Native discussions almost always include an explicit limitations paragraph and suggest future research directions.

Table B 06

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes key findings	“In this prospective cohort of 11,226 participants...”, “one in four participants with CVD did not use any medications...”, “less than a quarter used three or more medications...”	✓ Clear and data-rich restatement of findings. □ The opening is long and numerically dense; native discussions often provide a more synthesized summary before detailed statistics.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“These proportions are well below the modest target of 50% coverage...”, “These rates of use in ME is an overestimate...”	✓ Interpretation is explicit and evaluative. □ Interpretation focuses mainly on descriptive underuse rather than deeper analytical insight into behavioral or systemic causes.
Move 3 – Comparison with previous studies	Compares findings with other regions and studies	Sections titled “COMPARISON WITH OTHER REGIONS” and references to Iran, South Asia, South America, China	✓ Very strong realization of this move. □ Comparisons dominate large sections, sometimes resembling a results-style literature review rather than a synthesized discussion.
Move 4 – Explanation of similarities / discrepancies	Explains differences across regions and countries	“almost two-thirds of the effect... is due to the country’s economic status...”, “Affordability and availability of medications...”	✓ Clear explanations grounded in economic and health-system factors. □ Explanations are mostly external (WHO data, prior studies) with limited reflexive interpretation from the authors’ own dataset.
Move 5 – Implications /	Highlights practical	“This decrease in use at	✓ Strong regional and health-

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps (vs. Native Writing)
contextualization (clinical, regional, practice-based)	and policy implications	the community level... needs to be investigated...”, “There are multiple barriers at the patient, clinician, and health system level...”	system contextualization. □ Implications are broad; native discussions often sharpen these into more specific clinical or policy recommendations.
Move 6 – Mechanistic or theoretical explanation	Explains underlying mechanisms or pathways	“Affordability and availability...”, “Higher contact and accessibility to health care...”, explanations of gender, obesity, diabetes, awareness	✓ Mechanistic reasoning is present and multifactorial. □ Mechanisms are socio-structural rather than theoretical; limited engagement with behavioral or adherence theory typical of native writing.
Move 7 – Limitations and future directions	States limitations, strengths, and future work	“Limitations: First, since PURE was a large cohort...”, “Strengths: To our knowledge, this is the largest multinational study...”	✓ Explicit and well-structured limitations section. ✓ Strengths clearly articulated. □ Future research directions are mentioned but not sharply framed as research questions or hypotheses.

Table B 07

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes key findings	“This cross-sectional survey is the first phase of the IRAQ-PPI Project...”, “After having the data that this survey added (phase 1) to the data that we will get from the survey that will be collected from patients during phase 2...”, “To the best of our knowledge this is the first study from the Middle East regarding insights of healthcare professionals toward participation in clinical trials in the cardiovascular field.”	✓ Clearly establishes the purpose, novelty, and scope of the study. □ Long, multi-clause sentences; native writing often opens with a concise, synthesized summary before elaborating phases.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“Our study provides important key factors that can impact the contribution of cardiovascular healthcare professionals to clinical trials in Iraq, while suggesting crucial steps to promote their future participation.”	✓ Explicit interpretation of findings. □ Focuses more on project design and potential than on quantifiable results; lacks critical reflection on strengths/weaknesses of the findings themselves.
Move 3 – Comparison with previous studies	Compares findings with other studies/regions	“Our results are similar from studies conducted by Al-Tannir et al., Sumi et al., and Ihara et al. in Saudi Arabia and Japan...”, “This supportive attitude among physicians might underscore a culture of cooperation within the medical community in those countries...”	✓ Strong engagement with comparable studies. □ Comparisons are descriptive; less critical synthesis of why differences or similarities occur, typical in native discussions.
Move 4 – Explanation of similarities / discrepancies	Explains reasons for observed similarities/differences	“However, the favor toward the necessity of establishing clinical trials ecosystem among our survey respondents was mostly attributed to	✓ Provides socio-cultural and economic explanations for findings. □ Limited

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
		the existent cultural and economic factors...”, “The lack of adequate facilities, infrastructure, and funding emerged as significant obstacles...”	discussion of underlying behavioral or systemic mechanisms; mainly descriptive.
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Highlights practical, policy, and professional implications	“This project can provide the PPI toolkit that can be applied in other low-resource settings.”, “Electronic health records should be a priority for healthcare decision makers and stakeholders...”	✓ Clearly draws practical implications and recommendations. □ Some implications are broad; native writing often links these more explicitly to measurable outcomes or concrete actions.
Move 6 – Mechanistic or theoretical explanation	Explains mechanisms, pathways, or theoretical reasoning	“Healthcare practitioners’ limited knowledge of the operational and fundamental aspects of clinical trials... highlights the significance of educational efforts...”, “Differences in participation also existed depending on demographic and professional attributes.”	✓ Provides some causal reasoning linking barriers to outcomes. □ Explanations are operational or socio-demographic; theoretical frameworks (e.g., diffusion of innovation, behavior change models) are not explicitly engaged.
Move 7 – Limitations and future directions	States study limitations, strengths, and future research	“Future research is needed regarding how targeting specific barriers can improve the clinical trials ecosystem in Iraq like establishing electronic health records...”, “While nearly 30% of respondents reported prior participation in clinical trials, a significant portion remained undecided about future participation.”	✓ Mentions key limitations and suggests future research. □ Limitations are somewhat implicit; native writing usually separates limitations, strengths, and specific actionable research questions more clearly.

Table B 08

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes key findings	“To our knowledge, our study is the first to assess the relationship between PA and odds of CHD in Lebanese women.”, “Essentially, our results showed that women who practice at least moderate intensity PA... appeared to be protected against CHD.”, “a significant sedentary lifestyle... was associated with an increased odd of CHD.”	✓ Clearly establishes novelty and main findings. □ Numerically detailed, but long sentences; native discussions often start with a concise summary before elaborating.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“Essentially, our results showed that women who practice at least moderate intensity PA... appeared to be protected against CHD.”, “Work-related PA did not appear to be associated with CHD in our study...”	✓ Interprets associations in context. □ Some explanations are descriptive; less critical reflection on causality or confounding.
Move 3 – Comparison with previous studies	Compares findings with literature	“This result was consistent with other studies showing that most women in Arab countries suffer from insufficient PA...”, “Previous study suggested that sitting for 10 or more hours per day was associated with increased odds of CVD...”	✓ Strong engagement with literature. □ Comparisons are extensive and sometimes descriptive; synthesis of differences or similarities could be more concise.
Move 4 – Explanation of similarities / discrepancies	Explains reasons for observed findings or inconsistencies	“This could be explained by the low prevalence of high-amount PA for transport in our population, possibly due to the predominance of hot, sunny weather...”, “most of the women live in urban/peri-urban	✓ Contextualizes findings with environmental and cultural factors. □ Explanations are mainly descriptive; limited discussion of underlying

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
		areas... lack of green spaces...”	mechanisms (e.g., social, psychological, behavioral pathways).
Move 5 – Implications / contextualization (clinical, regional, practice-based)	Highlights practical and policy implications	“Thus, our results in Lebanese women are consistent with recent European Society of Cardiology (ESC) guidelines recommending adults...”, “could be used in a pragmatic CVD prevention strategy in aging Lebanese women...”	✓ Strong link to clinical guidelines and public health implications. □ Native writing may sharpen this into specific recommendations or policy actions with measurable impact.
Move 6 – Mechanistic or theoretical explanation	Explains mechanisms or pathways underlying findings	“Gardening can... be discussed as an integral part of the 'Mediterranean diet'... outdoor moderate daily PA, favoring vitamin D synthesis, seasonal adaptation to light, consumption of mature fruits and vegetables...”	✓ Offers mechanistic insight connecting lifestyle to physiological outcomes. □ Limited theoretical framing; mechanisms largely descriptive rather than linked to behavioral or epidemiological theory.
Move 7 – Limitations and future directions	States study limitations, strengths, and future work	“Our study has some limitations. The sample was composed of hospitalized patients... Self-reported PA likely has a significant measurement error... residual confounding by unmeasured factors remains... However, the large sample size and face-to-face interviews increased the precision of the study.”	✓ Clearly outlines limitations and justifies strengths. □ Future research directions are not explicitly framed; native writing often separates limitations, strengths, and specific actionable next steps.

Table B 09

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes key findings	“In this nationwide survey study of HL levels in patients with CVD in the UAE, 39.3% of participants demonstrated inadequate HL levels.”, “Inadequate HL was also significantly associated with older age.”	✓ Clear, concise summary of study purpose and major findings. □ Could include a one-sentence statement emphasizing novelty or importance to match native discussion style.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“Thus, the overall HL levels were higher among men participants than women.”, “Older adults... had the lowest HL levels.”, “Unlike diabetic patients... our results do not show a correlation between education and HL.”	✓ Explains observed patterns. □ Some interpretations are descriptive; deeper causal reasoning or theoretical framing is limited.
Move 3 – Comparison with previous studies	Compares findings with literature	“These findings are similar to multinational studies... in China (37%), Malaysia (25%), and Brazil (22%).”, “Many studies have noted similar results [23, 24].”	✓ Good use of international literature to contextualize results. □ Comparisons are largely descriptive; could benefit from synthesis highlighting why UAE findings differ or align.
Move 4 – Explanation of similarities / discrepancies	Explains reasons for observed findings or inconsistencies	“It is possible that men in the UAE may have more opportunities to learn about their health due to their occupations...”, “As women in the UAE often serve in the caregiver role... increased utilization and familiarity with the healthcare system may have contributed...”	✓ Contextualizes findings with cultural and social factors. □ Explanations are plausible but speculative; limited empirical support for some interpretations.

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
Move 5 – Implications / contextualization (clinical, policy, public health)	Highlights practical and policy implications	“Patients with CVD must sufficiently understand health information in order to manage medications...”, “interventions aimed at improving patient HL levels may decrease CVD risk factors and improve population health.”, “healthcare professionals should routinely incorporate universal health literacy communication strategies...”	✓ Strong focus on clinical and public health relevance. □ Could include more prioritized or concrete recommendations; currently broad and generalized.
Move 6 – Mechanistic or theoretical explanation	Explains underlying mechanisms or pathways	“Patients with inadequate HL report even greater difficulties with understanding and adhering to treatment plans.”, “Pre-visit preparation and coaching... can help patients with inadequate HL to engage in and improve their health.”	✓ Links HL to patient behavior and clinical outcomes. □ Mostly descriptive; limited engagement with theoretical models of health literacy, behavior change, or adherence.
Move 7 – Limitations and future directions	States study limitations, strengths, and future research	“Our study included patients from all emirates in the UAE and spanned a large age range... However, our findings have several limitations. First, we only surveyed individuals attending outpatient clinics... The cross-sectional design only determines correlation... Future studies are needed to determine if there is a causal link between HL and CVD risk and outcomes in the UAE.”	✓ Clearly identifies limitations, acknowledges strengths, and suggests future research. □ Could frame future directions as specific research questions or intervention studies for stronger native-style discussion.

Table B 10

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
Move 1 – Restating purpose & principal findings	Restates study aim and summarizes key findings	“The key findings from this first large Middle Eastern study of SMuRF-less patients with ASCVD are...”, “nearly one in 25 patients was SMuRF-less...”, “SMuRF-less patients were younger... and had a lower one year survival rate.”	✓ Clear and well-structured summary of the study’s major findings. ✓ Strong opening typical of research discussions. □ Could briefly restate the research objective to strengthen coherence with the introduction.
Move 2 – Interpretation of main results	Interprets meaning and significance of findings	“The current study... showed that the prevalence of 3.9% of SMuRF-less patients is among the lowest rates reported...”, “The younger age of the SMuRF-less patients... might explain the finding that certain comorbid diseases... were less prevalent...”	✓ Effectively interprets prevalence and demographic findings. ✓ Uses logical explanations linked to clinical characteristics. □ Some interpretations remain descriptive rather than critically analytical.
Move 3 – Comparison with previous studies	Compares findings with previous literature	“Prevalence of SMuRF-less patients as low as 1.5% was reported by a study from Japan...”, “25.4% reported by a study from India...”, “This finding is consistent with findings by other investigators.”	✓ Extensive use of international literature to contextualize findings. ✓ Demonstrates strong engagement with previous studies. □ Comparisons are sometimes sequential and descriptive without deeper synthesis.
Move 4 – Explanation of similarities /	Explains reasons for similarities or inconsistencies	“The discrepancies in the reported prevalence rates... are explained by regional variation...”, “Different cut-	✓ Provides methodological and contextual explanations for differing findings. ✓ Highlights diagnostic and

Move	Function	Textual Evidence from the Discussion	Comments / Notes / Identified Gaps
discrepancies	in findings	off levels have been used to define each SMuRF.”, “Smoking patterns other than cigarette smoking... were not included...”	regional variations effectively. □ Some explanations are speculative and supported by limited direct evidence.
Move 5 – Implications / contextualization (clinical, policy, public health)	Highlights practical and clinical implications	“the major pillar in the strategies that aim to curb the cardiovascular epidemic should focus on early diagnosis and intervention...”, “it is important to improve the visibility of the SMuRF-less population in future clinical trials...”	✓ Strong emphasis on prevention strategies and healthcare implications. ✓ Connects findings to regional cardiovascular health priorities. □ Recommendations are broad and could include more specific clinical or policy actions.
Move 6 – Mechanistic or theoretical explanation	Explains possible biological or pathological mechanisms	“Several potential factors could contribute to the occurrence of ASCVD in SMuRF-less patients including chronic systemic inflammatory process...”, “Coronary dissection, embolism and prolonged spasm... have also been implicated...”	✓ Introduces biological and pathophysiological explanations. ✓ Adds scientific depth to interpretation of findings. □ Limited integration of theoretical frameworks or emerging cardiovascular models.
Move 7 – Limitations and future directions	States study limitations and proposes future research	“There are a number of limitations in our study that warrant discussion.”, “our findings may still be susceptible to unmeasured confounding...”, “much remains to be elucidated in the group of SMuRF-less patients...”	✓ Clearly acknowledges methodological limitations and possible biases. ✓ Suggests need for further clinical research and trials. □ Future research directions could be framed more specifically as targeted studies or interventions.

Appendix C

Analysis Tables of persuasive Markers in Native-English Research Article Results Sections

Table C 01

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...appeared to have less benefit than those in class II." 2. "...generally consistent... although the patients... appeared to have..."
Boosting and Emphasize	4	1. "...were well balanced between the trial groups..." 2. "...favored dapagliflozin..." 3. "...fewer had significant deterioration..." 4. "...no notable excess of any event..."
Quantification	12	1. "4744 patients" 2. "410 centers in 20 countries" 3. "42% of the patients" 4. "additional 3%" 5. "249 patients" 6. "258 patients" 7. "10.5% vs. 10.9%, P=0.71" 8. "2039 of the patients (98.1%)"

		9. "1993 patients (98.2%)" 10. "10-mg daily dose" 11. "18.2 months (range, 0 to 27.8)" 12. "386 patients (16.3%)"
Comparative Framing	6	1. "...as compared with 318 patients (13.4%) receiving placebo." 2. "...was lower in the dapagliflozin group than in the placebo group." 3. "...was greater in the dapagliflozin group than in the placebo group." 4. "More patients in the dapagliflozin group than in the placebo group..." 5. "...fewer had significant deterioration..." 6. "...as compared with 0.74... among those not taking sacubitril–valsartan."
Signposting and Structuring	3	1. "(Table 1)" 2. "Details regarding... are summarized in Figure S2." 3. "(Table 2 and Fig. 2A)"
Trend and Observational	2	1. "...generally consistent across prespecified subgroups..." 2. "The primary composite outcome... occurred in..."

Table C 02

Category	Freq. (n)	All Identified Examples
Hedging and Caution	3	1. "...suggests a slight reduction..." 2. "...indicates uncertainty in the precise effect estimate." 3. "...suggests a trend towards a lower risk..."
Boosting and Emphasize	5	1. "...comprehensive systematic search..." 2. "...stringent eligibility criteria..." 3. "...rigorous selection process ensures the reliability..." 4. "...meticulously assessed..." 5. "...ensures the integrity and robustness of our study."
Quantification	9	1. "2,225 records" 2. "5 randomized controlled trials" 3. "sample size of 912" 4. "448 in the dapagliflozin group and 464 in the control" 5. "RR 0.56 (95% CI 0.36–0.88)" 6. "p-value of 0.01" 7. "$I^2 = 26\%$"

Category	Freq. (n)	All Identified Examples
		8. "MD was -0.11 (95% CI -0.73 to 0.51)" 9. "p-value of 0.72"
Comparative Framing	4	1. "...reduced risk of death compared to the control group." 2. "...reduction in hospital stay length... compared to controls." 3. "...compared to the control group." 4. "...compared to the control group."
Signposting and Structuring	4	1. "The PRISMA flowchart below (Fig. 1) provides..." 2. "The detailed risk of bias assessment is depicted in..." 3. "(Fig. 2A and B)" 4. "(Fig. 3)"
Trend and Observational	3	1. "...identified 2,225 records." 2. "Pooled analysis revealed that..." 3. "...suggests a trend towards a lower risk..."

Table C 03

Category	Freq. (n)	All Identified Examples
Hedging and Caution	1	1. "...modest reliability (0.66) for LAPEF."
Boosting and Emphasize	2	1. "...demonstrated excellent reliability (>0.90)..." 2. "There were significant interactions..."
Quantification	8	1. "Ninety-seven participants" 2. "49 randomized to empagliflozin and 48 to placebo" 3. "7 participants (5 empagliflozin, 2 placebo)" 4. "90 participants" 5. "59.3±10.9g/m ² and 62.2±12.8g/m ² " 6. "-2.6±7.8g/m ² " 7. "-3.35g/m ² (95% CI -5.9 to -0.81 g/m ²)" 8. "p=0.01"
Comparative Framing	3	1. "...compared to 6 months was... for the empagliflozin group and... for the placebo group." 2. "...between group difference..." 3. "...more pronounced in those with regional wall motion abnormality..."
Signposting and	2	1. "Baseline... characteristics... are summarized in Table 1."

Category	Freq. (n)	All Identified Examples
Structuring		2. "The relationships... are demonstrated in Table 3."
Trend and Observational	2	1. "There was no significant correlation..." 2. "Intraclass correlation coefficients demonstrated..."

Table C 04

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...would be expected to yield reductions of approximately 12.5%..." 2. "...could correspond to a reduction ranging from a 6% to a 16%..."
Boosting and Emphasize	2	1. "...strictly recruited patients with HFrEF..." 2. "...were well-correlated ($R^2 = 90.1\%$)..."
Quantification	10	1. "113 trials" 2. "261 068 patients" 3. "median follow-up duration of 16.0 (IQR, 9.0-30.0) months" 4. "66.2 (IQR, 62.8-70.0) years" 5. "25.4% (IQR, 21.3%-34.2%)" 6. "74.6% (IQR, 65.8%-78.7%)" 7. "52.0% (IQR, 32.1%-75.2%)" 8. "LVEF was 30.0%" 9. "60 (53.1%)" 10. "45.9% (IQR, 30.7%-51.7%)"

Category	Freq. (n)	All Identified Examples
Comparative Framing	5	1. "...pharmaceutical vs nonpharmaceutical..." 2. "...higher in trials of nonpharmaceutical interventions compared with pharmaceutical..." 3. "...higher ratio compared with trials that additionally enrolled..." 4. "...mean OR for all-cause hospitalization was approximately half that for HF..." 5. "...compared with those who reported the least..."
Signposting and Structuring	4	1. "eFigure 1 in Supplement 1 illustrates..." 2. "(Figure 1)" 3. "Figure 4 shows the value of..." 4. "The Table outlines the HF hospitalization reduction required..."
Trend and Observational	3	1. "...reporting all-cause hospitalization did not improve across time..." 2. "This ratio increased in trials enrolling a greater proportion..." 3. "The ratio decreased in trials enrolling participants with higher mean LVEFs."

Table C 05

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...would be expected to yield reductions of approximately 12.5%..." 2. "...could correspond to a reduction ranging from a 6% to a 16%..."
Boosting and Emphasize	2	1. "...strictly recruited patients with HFrEF..." 2. "...were well-correlated ($R^2 = 90.1\%$)..."
Quantification	10	1. "113 trials" 2. "261 068 patients" 3. "median follow-up duration of 16.0 (IQR, 9.0-30.0) months" 4. "66.2 (IQR, 62.8-70.0) years" 5. "25.4% (IQR, 21.3%-34.2%)" 6. "74.6% (IQR, 65.8%-78.7%)" 7. "52.0% (IQR, 32.1%-75.2%)" 8. "LVEF was 30.0%" 9. "60 (53.1%)" 10. "45.9% (IQR, 30.7%-51.7%)"
Comparative Framing	5	1. "...pharmaceutical vs nonpharmaceutical..."

Category	Freq. (n)	All Identified Examples
		2. "...higher in trials of nonpharmaceutical interventions compared with pharmaceutical..." 3. "...higher ratio compared with trials that additionally enrolled..." 4. "...mean OR for all-cause hospitalization was approximately half that for HF..." 5. "...compared with those who reported the least..."
Signposting and Structuring	4	1. "eFigure 1 in Supplement 1 illustrates..." 2. "(Figure 1)" 3. "Figure 4 shows the value of..." 4. "The Table outlines the HF hospitalization reduction required..."
Trend and Observational	3	1. "...reporting all-cause hospitalization did not improve across time..." 2. "This ratio increased in trials enrolling a greater proportion..." 3. "The ratio decreased in trials enrolling participants with higher mean LVEFs."

Table C 06

Category	Freq. (n)	All Identified Examples
Hedging and Caution	4	1. "...marginally significant risk reduction..." 2. "...should be interpreted cautiously due to variations..." 3. "...non-significant trend toward lower risk..." 4. "...indicated a trend towards lower risk... though not statistically significant."
Boosting and Emphasize	3	1. "...further supporting the robustness of our conclusions." 2. "...more likely to significantly reduce the risk..." 3. "...strongest evidence coming from the RCTs..."
Quantification	5	1. "3847 records" 2. "7 RCTs as well as 3 additional retrospective studies" 3. "(RR: 0.67, 95% CI: 0.47–0.95)" 4. "(RR: 0.74, 95% CI: 0.39–1.41)" 5. "(RR 0.8; 95% Credible Interval 0.4–1.4)"
Comparative Framing	3	1. "...compared to placebo." 2. "...demonstrated a more pronounced... risk reduction... compared to placebo." 3. "...separating RCTs and retrospective PSM studies."

Category	Freq. (n)	All Identified Examples
Signposting and Structuring	4	1. "(Fig. 1)" 2. "Detailed results are provided in (Supplemental Table 4)." 3. "(Supplementary Figs. 21, 22)" 4. "(Fig. 2a)"
Trend and Observational	3	1. "...revealed a non-significant trend..." 2. "...meta regression analysis with predictors... only age showed a significant relationship." 3. "No risk reduction was observed across all outcomes..."

Table C 07

Category	Freq. (n)	All Identified Examples
Hedging and Caution	3	1. "...should be interpreted cautiously since a small number of studies (n=2) were included." 2. "...should be interpreted cautiously because the Cochrane handbook did not recommend..." 3. "...suggested no potential risk of publication bias..."
Boosting and Emphasize	4	1. "...predefined criteria." 2. "...graded as moderate-to-high quality..." 3. "...associated with a significant reduction..." 4. "...heterogeneity was greatly reduced to 0%..."
Quantification	8	1. "15,268 retrieved records" 2. "447,202 patients with AF" 3. "23.5% (n=105,261)" 4. "1.85 to 5.1 years" 5. "(HR=0.88, 95% CI: 0.86–0.89; I²=0%)" 6. "8 eligible studies" 7. "NOS of ≥ 6 points" 8. "Pinteraction>0.05"

Category	Freq. (n)	All Identified Examples
Comparative Framing	3	1. "...compared with rate control..." 2. "...no difference in all-cause death... between the two studied groups." 3. "...no significant interactions between RCT versus real world data..."
Signposting and Structuring	5	1. "The literature retrieval process is presented in Fig. 1." 2. "Supplemental Table 3" 3. "As shown in Fig. 2..." 4. "(Supplemental Fig. 1)" 5. "Visual inspection of the funnel plots..."
Trend and Observational	2	1. "...we observed that early rhythm control was significantly associated..." 2. "...results... were unchanged after we excluded the greatest weight study..."

Table C 08

Category	Freq. (n)	All Identified Examples
Hedging and Caution	4	1. "...marginally significant risk reduction..." 2. "...should be interpreted cautiously due to variations..." 3. "...non-significant trend toward lower risk..." 4. "...indicated a trend towards lower risk... though not statistically significant."
Boosting and Emphasize	3	1. "...further supporting the robustness of our conclusions." 2. "...more likely to significantly reduce the risk..." 3. "...strongest evidence coming from the RCTs..."
Quantification	5	1. "3847 records" 2. "7 RCTs as well as 3 additional retrospective studies" 3. "(RR: 0.67, 95% CI: 0.47–0.95)" 4. "(RR: 0.74, 95% CI: 0.39–1.41)" 5. "(RR 0.8; 95% Credible Interval 0.4–1.4)"
Comparative Framing	3	1. "...compared to placebo." 2. "...demonstrated a more pronounced... risk reduction... compared to placebo." 3. "...separating RCTs and retrospective PSM studies."

Category	Freq. (n)	All Identified Examples
Signposting and Structuring	4	1. "(Fig. 1)" 2. "Detailed results are provided in (Supplemental Table 4)." 3. "(Supplementary Figs. 21, 22)" 4. "(Fig. 2a)"
Trend and Observational	3	1. "...revealed a non-significant trend..." 2. "...meta regression analysis with predictors... only age showed a significant relationship." 3. "No risk reduction was observed across all outcomes..."

Table C 09

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...remained relatively stable..." 2. "...displayed a small but steady decline."
Boosting and Emphasize	3	1. "...acute decline was observed..." 2. "...sharp decrease was observed..." 3. "...death spiked."
Quantification	6	1. "23% fewer visits" 2. "22% decrease" 3. "38% and 35% of all GP and other HCP practitioner visits" 4. "13% and 27% fewer... visits" 5. "83% fewer diagnostic imaging tests" 6. "17%"
Comparative Framing	4	1. "...as compared to period 1 of the control year 2019/2020..." 2. "...conducted by GPs vs other HCPs." 3. "...higher, compared to previous rates." 4. "...relative to period 1 of all 3 control years."
Signposting and Structuring	5	1. "(Fig. 2)"

Category	Freq. (n)	All Identified Examples
		2. "(Supplemental Fig. S1)" 3. "(Fig. 3)" 4. "Diagnostic imaging volumes... are displayed in Supplemental Figure S5." 5. "(data not shown)"
Trend and Observational	5	1. "Similar trends were seen for rates of ED visits..." 2. "An interesting trend was observed in the stratification..." 3. "The total number... followed a declining trend throughout the study period." 4. "...returning to seasonal trends." 5. "The projected trend returned for the remainder..."

Table C 10

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...remained relatively stable..." 2. "...displayed a small but steady decline."
Boosting and Emphasize	3	1. "...acute decline was observed..." 2. "...sharp decrease was observed..." 3. "...death spiked."
Quantification	6	1. "23% fewer visits" 2. "22% decrease" 3. "38% and 35% of all GP and other HCP practitioner visits" 4. "13% and 27% fewer... visits" 5. "83% fewer diagnostic imaging tests" 6. "17%"
Comparative Framing	4	1. "...as compared to period 1 of the control year 2019/2020..." 2. "...conducted by GPs vs other HCPs." 3. "...higher, compared to previous rates." 4. "...relative to period 1 of all 3 control years."
Signposting and Structuring	5	1. "(Fig. 2)"

Category	Freq. (n)	All Identified Examples
		2. "(Supplemental Fig. S1)" 3. "(Fig. 3)" 4. "Diagnostic imaging volumes... are displayed in Supplemental Figure S5." 5. "(data not shown)"
Trend and Observational	5	1. "Similar trends were seen for rates of ED visits..." 2. "An interesting trend was observed in the stratification..." 3. "The total number... followed a declining trend throughout the study period." 4. "...returning to seasonal trends." 5. "The projected trend returned for the remainder..."

Appendix D

Analysis Tables of persuasive Markers in Non-Native-English Research Article Results Sections

Table D 01

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "Of note, out of the original cohort..." 2. "There were largely no significant differences..."
Boosting and Emphasize	3	1. "...were consequently discharged alive..." 2. "...significant reduction in the overall mean..." 3. "...revealed significant reductions in MACE events..."
Quantification	9	1. "1820 patients" 2. "29.1% (n = 529)" 3. "10.2%; n = 54" 4. "61.7 ± 12.2 years" 5. "SIMUS of <10%" 6. "p > 0.05" 7. "25% vs. 43%" 8. "p < 0.001" 9. "1.2% (from 20.5%)"
Comparative Framing	6	1. "...were younger... lower GRACE risk scores... when compared to those that did not undergo PCI/CABG." 2. "...they were less likely to have atrial fibrillation..." 3. "...more likely to be prescribed... compared to those who did not undergo PCI/CABG." 4. "...before and after the EB matching method." 5. "288 PCI/CABG patients were matched with 762 controls..." 6. "25% vs. 43%"

Signposting and Structuring	5	1. "As illustrated in Figure 1..." 2. "As shown in Table 1..." 3. "Table 1 also outlines..." 4. "Table 2 presents the benefits..." 5. "...as demonstrated by the insignificant differences..."
Trend and Observational	2	1. "This decrease was consistent across individual MACE components..." 2. "...the three most prevalent comorbid conditions among this cohort were..."

Table D 02

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "Of note, out of the original cohort..." 2. "There were largely no significant differences..."
Boosting and Emphasize	3	1. "...were consequently discharged alive..." 2. "...significant reduction in the overall mean..." 3. "...revealed significant reductions in MACE events..."
Quantification	9	1. "1820 patients" 2. "29.1% (n = 529)" 3. "10.2%; n = 54" 4. "61.7 ± 12.2 years" 5. "SMDs of <10%" 6. "p > 0.05" 7. "25% vs. 43%" 8. "p < 0.001" 9. "1.2% (from 20.5%)"
Comparative Framing	6	1. "...were younger... lower GRACE risk scores... when compared to those that did not undergo PCI/CABG." 2. "...they were less likely to have atrial fibrillation..."

Category	Freq. (n)	All Identified Examples
		3. "...more likely to be prescribed... compared to those who did not undergo PCI/CABG." 4. "...before and after the EB matching method." 5. "288 PCI/CABG patients were matched with 762 controls..." 6. "25% vs. 43%"
Signposting and Structuring	5	1. "As illustrated in Figure 1..." 2. "As shown in Table 1..." 3. "Table 1 also outlines..." 4. "Table 2 presents the benefits..." 5. "...as demonstrated by the insignificant differences..."
Trend and Observational	2	1. "This decrease was consistent across individual MACE components..." 2. "...the three most prevalent comorbid conditions among this cohort were..."

Table D 03

Category	Freq. (n)	All Identified Examples
Hedging and Caution	1	1. "...but not in MI... and 12-months all-cause mortality (aOR, 0.79... p = 0.383)."
Boosting and Emphasize	3	1. "...treated optimally with the dual antiplatelet combination..." 2. "...significantly higher among patients on NSAIDs..." 3. "...significantly more likely to have had MACE..."
Quantification	7	1. "N = 3007" 2. "9.6% (n = 290)" 3. "62 ± 12 years" 4. "44% vs. 38%; p = 0.049" 5. "aOR, 1.89; 95% CI: 1.44–2.48" 6. "p < 0.001" 7. "52% (n = 1427)"
Comparative Framing	4	1. "patients on NSAIDs (compared to patients not on NSAIDs)..." 2. "...stratified by NSAIDs use." 3. "...higher among patients on NSAIDs than those not on NSAIDs."

Category	Freq. (n)	All Identified Examples
		4. "Adjusting for demographic and clinical characteristics..."
Signposting and Structuring	4	1. "As shown in Table 1..." 2. "Table 2 shows medication utilization..." 3. "...as shown in Table 3." 4. "The overall MACE rate was..."
Trend and Observational	2	1. "The higher event rates were specifically observed in..." 2. "Comorbid conditions were common, particularly..."

Table D 04

Category	Freq. (n)	All Identified Examples
Hedging and Caution	5	1. "...might not be the case." 2. "...hypothetically thought to be the protective factor..." 3. "...apparently normal epicardial coronary arteries..." 4. "...this might be considered a call for action..." 5. "...disappointing data coming from the VIRGO study, which indicated..."
Boosting and Emphasize	4	1. "...very high adherence to evidence-based therapies..." 2. "Surprisingly..." 3. "Interestingly..." 4. "...significantly less prescribed clopidogrel..."
Quantification	10	1. "3224 patients" 2. "25.7% were females" 3. "$P < 0.001$" 4. "131.7 ± 48.5 mg/dl" 5. "30 ± 5 versus 29 ± 5 kg/m" 6. "> 90% of patients"

Category	Freq. (n)	All Identified Examples
		7. "64.8% of the total population" 8. "5.3% of patients" 9. "9.9% versus 5.5% respectively" 10. "11% less likely..."
Comparative Framing	7	1. "...males less than 55 years and females less than 65 years old..." 2. "45% of total male and 69.6% of total females..." 3. "Dyspnea... was significantly more common in female patients..." 4. "BMI was significantly higher in females compared to males..." 5. "...prescribed more frequently for male patients compared to female ones..." 6. "...delayed onset of about 10 years or more in women..." 7. "...similar between males and females... (65.1 versus 64.1)."
Signposting and Structuring	5	1. "Socio-demographics, presentation and main clinical characteristics" 2. "(Table 1)" 3. "(Figure 1)"

Category	Freq. (n)	All Identified Examples
		4. "(Supplementary Table S1)" 5. "(Figure 2)"
Trend and Observational	3	1. "...showed a statistically significant graded increased prevalence with increasing age." 2. "...rises sharply in females in age groups >55 years." 3. "There was no trend to treat patients with premature ACS more aggressively..."

Table D 05

Category	Freq. (n)	All Identified Examples
Hedging and Caution	1	1. "...rates of coronary artery bypass graft (CABG) were similar [implying no treatment benefit]."
Boosting and Emphasize	3	1. "...statistically significant difference in MACE..." 2. "...continued to be multivariate predictors..." 3. "...significant multivariate predictors of mortality..."
Quantification	7	1. "503 AMI patients" 2. "45% STEMI and 55% NSTEMI" 3. "7.8%" 4. "77 ± 12 years versus 63 ± 13 years" 5. "P < 0.0001" 6. "28 ± 11% versus 48 ± 14%" 7. "80% versus 93%"
Comparative Framing	5	1. "...those who died were older... [than those who lived]." 2. "...versus 63 ± 13 years..." 3. "...but they were less likely to receive other medications..." 4. "...coronary angioplasty was less commonly utilized in those patients as well..."

Category	Freq. (n)	All Identified Examples
		5. "separate analyses were done for STEMI and NSTEMI..."
Signposting and Structuring	4	1. "...are shown in Tables 1 and 2." 2. "Using multivariate logistic regression analysis (Table 3)..." 3. "(also shown in Tables 1 and 2)" 4. "...were multivariate predictors for both STEMI and NSTEMI subgroups."
Trend and Observational	2	1. "Similar patterns were noted in both groups." 2. "The clinical characteristics... utilized are shown in..."

Table D 06

Category	Freq. (n)	All Identified Examples
Hedging and Caution	2	1. "...their education status was unknown." 2. "...urban dwellers were negatively associated with antiplatelet use..." (Counter-intuitive finding).
Boosting and Emphasize	3	1. "...OPT had the highest rates..." 2. "...KSA had the lowest rates..." 3. "...statistically significant difference... except for beta-blockers..."
Quantification	8	1. "11,226 participants" 2. "614 (5.5%)" 3. "4 years (IQR 2.0–8.3)" 4. "56.6 ± 8.8 years" 5. "p = 0.015" 6. "(OR, 95%CI)" 7. "3.14, 1.89–5.21" 8. "23.5%"
Comparative Framing	6	1. "...OPT had the highest rates... followed by Iran... while KSA had the lowest." 2. "...greater among participants with CHD compared to

Category	Freq. (n)	All Identified Examples
		participants with stroke." 3. "...between the urban and the rural areas..." 4. "...urban compared to 13.6% in rural KSA." 5. "Female were more likely than males to be on..." 6. "...compared to those with BMI <25."
Signposting and Structuring	6	1. "MEDICATION USE" 2. "Table 2" 3. "Supplementary Table 1" 4. "Figure 1A and 1B" 5. "INDEPENDENT RISK FACTORS" 6. "Table 3 illustrates adjusted associations..."
Trend and Observational	3	1. "Overall....25.8% of CHD patients did not use any medications.. " 2. "Increasing age was associated with increasing ... use." 3. "Higher-income countries had a higher use of .."

Table D 07

Category	Freq. (n)	All Identified Examples
Hedging and Caution	3	1. "...may affect Iraqi population responses to treatment." 2. "...did not know if such authority was present..." 3. "...cannot determine if they will or will not participate... as this depends on many factors."
Boosting and Emphasize	4	1. "No missing data was observed." 2. "...electronic health records are crucial to establishing..." 3. "...only significant predictor for future participation..." 4. "...presence of an active and functioning ethical committee..."
Quantification	9	1. "255 cardiovascular HPs" 2. "114 (44.7%)" 3. "91.8% (n = 234)" 4. "95.7% (n = 244)" 5. "84.31% (n = 215)" 6. "52.2% (n = 133)" 7. "58.8% (n = 150)" 8. "univariate analysis (Table 3)"

Category	Freq. (n)	All Identified Examples
		9. "37.6% (n = 96)"
Comparative Framing	3	1. "...significant difference in age distribution between those with previous participation [and those without]." 2. "...no other differences according to gender, type of hospital..." 3. "...factors for future participation in clinical trials in univariate analysis [vs. multiple regression]."
Signposting and Structuring	6	1. "Detailed demographics... are shown in Table 1." 2. "Detailed distribution... is shown in Figure 1." 3. "Figure 2 reports the perceived barriers..." 4. "(see Figure 3)" 5. "Table 2 reports the characteristics..." 6. "expressed in Figure 6"
Trend and Observational	2	1. "The most frequently reported reasons... were cultural factors..." 2. "The lack of electronic health records... and time... were reported as the most common barriers."

Table D 08

Category	Freq. (n)	All Identified Examples
Hedging and Caution	3	1. "...may affect Iraqi population responses to treatment." 2. "...did not know if such authority was present..." 3. "...cannot determine if they will or will not participate... as this depends on many factors."
Boosting and Emphasize	4	1. "No missing data was observed." 2. "...electronic health records are crucial to establishing..." 3. "...only significant predictor for future participation..." 4. "...presence of an active and functioning ethical committee..."
Quantification	9	1. "255 cardiovascular HPs" 2. "114 (44.7%)" 3. "91.8% (n = 234)" 4. "95.7% (n = 244)" 5. "84.31% (n = 215)" 6. "52.2% (n = 133)" 7. "58.8% (n = 150)" 8. "univariate analysis (Table 3)"

		9. "37.6% (n = 96)"
Comparative Framing	3	1. "...significant difference in age distribution between those with previous participation [and those without]." 2. "...no other differences according to gender, type of hospital..." 3. "...factors for future participation in clinical trials in univariate analysis [vs. multiple regression]."
Signposting and Structuring	6	1. "Detailed demographics... are shown in Table 1." 2. "Detailed distribution... is shown in Figure 1." 3. "Figure 2 reports the perceived barriers..." 4. "(see Figure 3)" 5. "Table 2 reports the characteristics..." 6. "expressed in Figure 6"
Trend and Observational	2	1. "The most frequently reported reasons... were cultural factors..." 2. "The lack of electronic health records... and time... were reported as the most common barriers."

Table D 09

Category	Freq. (n)	All Identified Examples
Hedging and Caution	1	1. "Approximately two-thirds... (61–72) [Use of approximation]."
Boosting and Emphasize	4	1. "...successfully completed the questionnaire..." 2. "yielded a response rate of 86.5%." 3. "...demonstrates that the model is able to distinguish..." 4. "...15-fold higher overall HL..."
Quantification	8	1. "336 patients" 2. "95%CI (61–72)" 3. "39.3% (132/336)" 4. "14.3% (48/336)" 5. "p<0.001" 6. "Nagelkerke Pseudo R square... was 0.40" 7. "2.7-fold higher (95% CI 1.58–4.53)" 8. "15-fold higher (95% CI 6.30-39.29)"
Comparative Framing	5	1. "...6.1% of... men... whereas 22% of women... had adequate HL." 2. "Women, however, had low marginal... and higher inadequate

Category	Freq. (n)	All Identified Examples
		HL... when compared to men." 3. "Patients below the age of 50... when compared to patients above 50." 4. "...nationality... others category possessed higher... when compared with... GCC." 5. "...likely to have 2.7-fold higher overall HL... than women participants."
Signposting and Structuring	5	1. "Table 1... Table 2... Table 3" 2. "(data not shown)" 3. "Correlation analysis... revealed..." 4. "Association assessment showed..." 5. "To assess the model's goodness-of-fit..."
Trend and Observational	2	1. "Age also contributed to HL levels." 2. "...inadequate HL levels were more prevalent among participants above the age of 50 years."

Table D 10

Category	Freq. (n)	All Identified Examples
Hedging and Caution	3	1. "...borderline significance..." 2. "...near universal prescription..." 3. "...[rather than radiological] diagnosis..."
Boosting and Emphasize	4	1. "...independently associated with ASCVD." 2. "...more favorable among the SMuRF-less group..." 3. "...most common SMuRF was dyslipidemia..." 4. "...potent antiplatelet agents..."
Quantification	9	1. "5540 patients" 2. "57.5 ± 11.6 years" 3. "83.7%" 4. "p = 0.01" 5. "90.6%" 6. "LDL-C (≤55 mg/dL)" 7. "one-year all-cause mortality was 2.3%" 8. "3094 (55.8%) patients" 9. "Supplementary Table S1"

Category	Freq. (n)	All Identified Examples
Comparative Framing	6	1. "Compared with patients who have SMuRFs, SMuRF-less patients were younger..." 2. "...lower prevalence of obesity [compared to SMuRF group]." 3. "Unlike those older than 65 years... the young group... were more likely..." 4. "...SMuRF-less compared with SMuRFs." 5. "A significantly lower percentage... received these medications compared with the SMuRFs patients." 6. "...more likely to receive clopidogrel than the more potent antiplatelet agents..."
Signposting and Structuring	6	1. "Table 1 depicts comparison of..." 2. "Figure 1 shows the number of..." 3. "Table 1 Clinical Features..." 4. "(Table 2 and Figure 2)" 5. "Supplementary Table S1" 6. "Table 3"
Trend and Observational	2	1. "Overall, the most common SMuRF was..." 2. "Multivariable analysis showed that only..."

Appendix E

List of Native-English and Non-Native English Journals Included in the Corpus

Table E 01 (Native corpus)

No	Research Article Title	Journal Title	Year
01	Dapagliflozin in Patients with Heart Failure and Reduced Ejection Fraction	<i>The New England Journal Of Medicine</i>	2019
02	Dapagliflozin in acute heart failure management: a systematic review and metaanalysis of safety and effectiveness	BMC Cardiovascular Disorders	2024
03	Empagliflozin and left atrial function in patients with type 2 diabetes mellitus and coronary artery disease: insight from the EMPA-HEART CardioLink-6 randomized clinical trial	Cardiovascular Diabetology	2024
04	Heart Failure and All-Cause Hospitalizations in Patients With Heart Failure A Meta-Analysis	<i>JAMA Network Open</i>	2024
05	Association of Sodium-Glucose Cotransporter 2 Inhibitors With Cardiovascular Outcomes in Patients With Type 2 Diabetes and Other Risk Factors For Cardiovascular Disease A Meta-analysis	<i>JAMA Network Open</i>	2022
06	Early initiation of SGLT2 inhibitors in acute myocardial infarction and cardiovascular outcomes, an updated systematic review and meta-analysis	BMC Cardiovascular Disorders	2025
07	Effectiveness of early rhythm control in improving	<i>BMC Medicine</i>	2022

	clinical outcomes in patients with atrial fibrillation: a systematic review and meta-analysis		
08	Associations of physical activity intensity with incident cardiovascular diseases and mortality among 366,566 UK adults	International Journal of Behavioral Nutrition and Physical Activity	2022
09	Trends in Major Adverse Cardiac Events and Healthcare Resource Utilization During the COVID-19 Pandemic in Alberta, Canada	Elsevier Masson	2023
10	Patients' Beliefs About Their Cardiovascular Medications After Acute Coronary Syndrome: A Prospective Observational Study	Elsevier Masson	2023

Table E 02 (Non-Native corpus)

No	Research Article Title	Journal Title	Year
01	Impact of Revascularization on Major Adverse Cardiovascular Events in Patients Without ST-Elevation Myocardial Infarction in the Arabian Gulf	Journal of Cardiovascular Development and Disease	2025
02	Guideline-directed medical therapy in heart failure patients with reduced ejection fraction in Palestine: Retrospective clinical audit study	Saudi Pharmaceutical Journal	2024
03	Association between Non-Steroidal Anti-Inflammatory Drug Use and Major Cardiovascular Outcomes in Patients with Acute Coronary Syndrome in the Arabian Gulf	Jornal Of Clinical Medicine	2023
04	Prevalence of atherosclerosis risk factors in Egyptian patients with acute coronary syndrome: final data of the nationwide cross-sectional 'CardioRisk' project	Journal of Public Health in Africa	2021
05	Predictors of In-Hospital Mortality in Patients Admitted with Acute Myocardial Infarction in a Developing Country	Journal of Medical Cases - Elmer Press	2018
06	Use of Cardiovascular Disease Secondary Prevention Medications in Four Middle East Countries in a Community Setting	Global Heart	2024

07	Perceptions of Cardiovascular Healthcare Professionals Regarding Clinical Trials: A Survey Based Study from the Middle East	Global Heart	2025
08	Physical activity and odds of coronary heart disease among Lebanese women	BMC Public Health	2024
09	Estimation of health literacy levels in patients with cardiovascular diseases in a Gulf country	BMC Health Services Research	2023
10	Absence of Standard Modifiable Risk Factors in Middle Eastern Patients with Atherosclerotic Cardiovascular Disease. The Jordan Absence of Standard Modifiable Risk Factors (SMuRF-Less) Study	Vascular Health and Risk Management	2025

ملخص الدراسة

يهدف هذا البحث إلى دراسة الخصائص الخطابية والتداولية في المقالات العلمية في مجال أمراض القلب، مع التركيز على أوجه الاختلاف بين الكُتّاب الناطقين الأصليين باللغة الإنجليزية وغير الناطقين بها. وينطلق البحث من أطر نظرية تشمل تحليل الأجناس الخطابية، والبلاغة التقابلية، ونموذج الموقف والتفاعل، حيث يُنظر إلى الكتابة الأكاديمية باعتبارها ممارسة اجتماعية وخطابية تهدف إلى بناء المعرفة وإقناع القارئ، وليس مجرد نقل محايد للمعلومات.

اعتمدت الدراسة منهجاً مقارناً قائماً على المدونات اللغوية، حيث تم تحليل عينة مكونة من عشرين (20) مقالاً علمياً محكّماً في تخصص أمراض القلب، موزعة بالتساوي بين كُتّاب ناطقين أصليين وغير ناطقين. وقد تم توظيف مقاربة مزدوجة تجمع بين التحليل الكمي، من خلال حساب التكرارات والتكرارات المعيارية، والتحليل النوعي القائم على التفسير السياقي للوظائف الخطابية.

وقد أظهرت النتائج أن كلا المجموعتين تلتزمان بالبنية الخطابية التقليدية للمقالات العلمية، إلا أن هناك اختلافات واضحة في كيفية توظيف هذه البنية. إذ يميل الكُتّاب الناطقون الأصليون إلى اعتماد أسلوب خطابي تكاملي ومتداخل، حيث يتم دمج عدة وظائف خطابية داخل نفس الوحدة النصية، مما يساهم في بناء حجاج غني ومتعدد الأبعاد. في المقابل، يتبنى الكُتّاب غير الناطقين أسلوباً خطيباً ومنظماً، يقوم على عرض الحركات الخطابية بشكل متسلسل ومنفصل، وهو ما يعزز الوضوح لكنه يحدّ من التعقيد الحجاجي.

أما فيما يتعلق باستراتيجيات الإقناع، فقد تبين أن كلا المجموعتين تعتمدان بشكل كبير على التكميم (البيانات الرقمية)، غير أن الكُتّاب الناطقين الأصليين يوظفون هذه المعطيات ضمن منظومة إقناعية متكاملة تشمل التحوّط والتأكيد والتقييم، مما يعكس قدرة أكبر على التفاعل مع القارئ وبناء موقف خطابي مرن. في حين يعتمد غير الناطقين بدرجة أكبر على الأرقام والمقارنة والتنظيم الصريح كوسائل رئيسية للإقناع. كما أكد تحليل التكرارات المعيارية أن هذه الفروقات تعود إلى تفضيلات خطابية مختلفة، وليست نتيجة لاختلاف طول النصوص.

تسهم هذه الدراسة في تعميق فهم الخطاب الأكاديمي من خلال إبراز أن الاختلافات بين الكُتّاب لا تعكس نقصاً في الكفاءة، بل تعكس تنوعاً في التوجهات الخطابية المرتبطة بالخلفيات اللغوية والتعليمية. وعلى المستوى البيداغوجي، تؤكد النتائج على ضرورة تطوير تعليم الإنجليزية لأغراض خاصة (ESP) بما يتجاوز تعليم البنية الشكلية، ليشمل تنمية الكفاءة الخطابية والقدرة على توظيف استراتيجيات إقناعية متقدمة في الكتابة الأكاديمية.

وبذلك، يقدم هذا البحث رؤية شاملة حول كيفية توظيف الموارد الخطابية والتداولية في المقالات العلمية في مجال أمراض القلب، مع إبراز أبعادها النظرية والتطبيقية.

Résumé

Cette étude vise à analyser le discours académique dans les articles de recherche en cardiologie à travers l'examen de la structure rhétorique et des stratégies persuasives employées par des auteurs anglophones natifs et non natifs. Elle s'intéresse particulièrement à l'analyse des mouvements rhétoriques dans la section « Discussion » ainsi qu'aux stratégies de persuasion mobilisées dans la section « Résultats », notamment l'atténuation (hedging), le renforcement assertif (boosting), la quantification (quantification), la comparaison et le guidage textuel (textual guidance).

Cette recherche s'inscrit dans une conception de l'écriture académique comme pratique sociale et rhétorique qui dépasse la simple transmission d'informations. L'écriture scientifique est envisagée comme un moyen de construire et de négocier les connaissances au sein des communautés académiques spécialisées. Dans cette perspective, l'étude cherche à dépasser la vision traditionnelle qui considère les différences observées dans les écrits des auteurs non anglophones comme des écarts ou des insuffisances, pour les interpréter comme le reflet de traditions culturelles et académiques distinctes.

L'étude adopte une approche descriptive, analytique et comparative combinant des analyses qualitatives et quantitatives. Le corpus est constitué de vingt articles de recherche en cardiologie publiés entre 2018 et 2025, dont dix rédigés par des auteurs anglophones natifs et dix par des auteurs non natifs. L'analyse repose sur les travaux fondateurs de la théorie des genres et de l'analyse du discours académique, notamment ceux de John Swales, Ken Hyland et Yang Allison.

Les résultats révèlent que les deux groupes d'auteurs respectent globalement la structure conventionnelle des articles scientifiques. Toutefois, des différences significatives apparaissent dans l'organisation des mouvements rhétoriques et dans l'utilisation des stratégies persuasives. Les auteurs anglophones natifs privilégient une organisation rhétorique souple et intégrée, où l'interprétation, l'évaluation et la persuasion sont souvent combinées au sein d'un même segment discursif. À l'inverse, les auteurs non natifs tendent à adopter une organisation plus linéaire et explicite, marquée par une séparation plus nette entre les différentes fonctions rhétoriques.

Par ailleurs, la quantification constitue la stratégie persuasive la plus fréquemment utilisée par les deux groupes. Néanmoins, les auteurs anglophones l'associent davantage à des stratégies d'atténuation, de renforcement et d'évaluation afin de renforcer la crédibilité de leurs résultats. Les auteurs non natifs, quant à eux, s'appuient plus fortement sur les données numériques et l'organisation structurelle du discours pour asseoir la validité de leurs conclusions.

L'intérêt de cette étude réside dans sa contribution à une meilleure compréhension des spécificités rhétoriques du discours médical académique en anglais. Elle permet également d'établir un lien entre l'analyse rhétorique et l'analyse du discours dans le domaine médical spécialisé. Enfin, elle offre des implications pédagogiques importantes pour l'enseignement de l'anglais de spécialité (ESP), notamment en ce qui concerne le développement des compétences en rédaction scientifique chez les chercheurs non anglophones.