

# The metadiscourse of Arabic academic abstracts: A corpus-based study

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**Abstract** – Research on metadiscourse and rhetorical features in modern Arabic academic writing is scarce both in quantity and in scope. Abstracts, in particular, are a severely understudied academic register. This study aims to fill a gap in the study of academic abstracts in Arabic by providing a more comprehensive analysis of metadiscourse in Arabic academic abstracts. The data for the study includes a corpus of 400 Arabic abstracts, which have been labeled according to two variables: (a) abstract type (journal or dissertation); and (b) author gender (male, female, mixed gender). The analysis follows the theoretical framework proposed by Hyland (2019), as the data has been annotated for both textual metadiscourse (transition markers, frame markers, evidentials, endophorics and code glosses) and interpersonal metadiscourse (hedges, boosters, attitude markers, engagement markers and self-mentions). Results show that Arabic academic abstracts are rich in both types of metadiscourse features. Transition and frame markers have the highest frequency in the textual domain, while boosters and self-mentions are highly frequent in the interpersonal domain. Endophoric markers and hedges are the least used types of metadiscourse in the data, but engagement markers are surprisingly more frequent than previously thought.

**Keywords** – metadiscourse; abstracts; Arabic; academic writing; corpus

## 1. INTRODUCTION

Academic writing is a discourse domain that reflects reader-writer relationship in rather specific ways. Many elements which linguistically embody this relationship have been discussed in the literature as ‘metadiscourse’. According to Hyland (2019: 3), this term was coined by the linguist Zellig Harris in 1959 in an attempt to highlight the aspects of perception, reception and interaction in/of a text. Later research built on this concept, most notably in the works of Kopple (1985) and Crismore (1989), who discussed a wide range of discursual features acting as metadiscourse devices and setting the tone of the rhetorical structure of a text. In pursuit of persuading readers of an academic argument, writers are seen to employ a heterogenous group of “cohesive and interpersonal features” (Hyland and Tse 2004: 157) in order to guide and engage readers along a certain interpretive path.



While there is now a considerable body of research on metadiscourse in general and in academic texts in particular, most of this research is restricted to texts in English. There is a visible need to fill a big gap in the research on metadiscourse in other languages. This study intends to partly fill this gap by exploring the use of metadiscourse markers in abstracts of Arabic journals and dissertations in the field of humanities and social sciences through these two research questions: (1) What is the overall distribution of metadiscourse markers in Arabic academic abstracts? (2) Are there distributional variations for metadiscourse elements in Arabic academic abstracts across the two variables: abstract type and author gender? The study adopts a corpus-based approach and employs both quantitative and qualitative analyses to the data, making a contribution to the field in two ways. First, it provides a detailed study of metadiscourse in abstracts of academic Arabic which, in contrast to existing studies, is based on a sizable corpus. Second, it presents useful insights on metadiscourse devices in relation to two variables: type and gender. By making a distinction between abstracts of journal papers and those of academic dissertations on the one hand, and between authors' genders on the other, this study provides a broader view of the use of metadiscourse in academic Arabic and thus facilitates our understanding of this discipline while at the same time laying the foundation for further studies.

This paper is organized as follows. Section 2 reviews some of the relevant literature on metadiscourse and academic writing. Section 3 introduces the corpus data collected for this study and the methodology followed. Section 4 presents the results of the analysis in relation to the two variables: abstract type and author gender. Section 5 discusses the results in light of the theoretical model and in comparison to other studies. Finally, Section 6 ends with some concluding remarks and recommendations for future research.

## 2. LITERATURE REVIEW

### *2.1. Metadiscourse and academic abstracts*

The study of metadiscourse as a functional category is concerned with the way in which personalities, attitudes and assumptions play a role in the writing and receiving of a text. According to Hyland (2019: 44),

metadiscourse is the cover term for the self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or speaker) to express a viewpoint and engage with readers as members of a particular community.

As such, the concept of metadiscourse which can be seen as “intuitively attractive” (Hyland and Tse 2004: 156) has been defined in various ways over time (*inter alia*, Halliday 1977; Kopple 1985; Crismore 1989; Thompson and Thetela 1995). Yet, one of the well-known classifications today is based on the work of Hyland (1998, 1999, 2004a, 2019), who developed over the years an operational model for metadiscoursal devices in academic writing. The basic distinction within this model is between two major categories of metadiscourse: the textual (or interactive) and the interpersonal (or interactional). Despite the change in the terms, both dimensions of interaction retain the same underlying conceptual distinction.<sup>1</sup> The textual/interactive dimension has to do with the writer-reader relationship and all the linguistic devices which the writer employs in the organization of discourse to reflect his/her awareness of the readers’ rhetorical expectations and processing abilities. This includes the use of transition markers, frame markers, endophoric markers, evidentials and code glosses. Each one of these sub-types manipulates the way propositional information is organized in the discourse and act as an interpretive guide to the readers. On the other hand, the interpersonal/interactional dimension has to do with the way writers project themselves onto the propositional content of the discourse as a form of establishing an authorial ‘voice’ in the text. This is done through various linguistic means which serve to comment, evaluate, express solidarity, allow engagement or manipulate the readers’ attention throughout the text. The sub-types which fulfil this role include boosters, hedges, attitude markers, self-mention and engagement markers.

While studies of metadiscourse have applied its principles to a wide array of academic texts, ever since Ventola’s (1994) seminal work, special attention has been given to the abstract as a genre. Young (2006: 64) describes abstracts as “an exercise in precise, accurate language;” therefore, by nature of their function, certain cognitive and linguistic skills are involved in writing abstracts regardless of the language. Functionally, an abstract is a form of academic writing, but it is also an independent piece of writing in

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<sup>1</sup> The terminology used in Hyland’s classification of metadiscourse has evolved over time. In Hyland (1998, 1999), he used the terms ‘textual-interpersonal’ then Hyland and Tse (2004) and Hyland (2019) shifted to the terms ‘interactive-interactional’ in distinguishing the two main domains of metadiscourse. For simplicity, in this paper the original terms ‘textual’ and ‘interpersonal’ are used throughout with no theoretical implications.

itself, that is, a type of a “stand-alone *mini-text*” as Huckin (2006: 93) calls it. It performs the important role of presenting the gist of the article or dissertation in an appealing and informative way for the readers. As such, abstracts set the relationship between the authors and the readers early on, and abstract writers have to take into consideration certain elements such as the readers’ needs, shared knowledge within the discipline, expectations of objectivity and degree of commitment to the communicated message. According to Huckin (2006), abstracts are an important medium of communication between writers and readers in more than one way. Abstracts can be ‘screening devices’ used by readers as a shortcut to the decision of reading the whole paper/dissertation. Crucially, abstracts are also “previews, creating an interpretive frame that can guide reading” (Huckin 2006: 93). Metadiscourse markers contribute a great deal to creating such an interpretive frame.

With a firm position in standard policies on academic publication in many languages, interest has grown steadily in studying the language, structure and metadiscourse of abstracts across various disciplines (*inter alia*, Swales 1990; Stotesbury 2003; Fischer and Zigmund 2004; Lorés 2004; Dahl 2004a; Swales and Feak 2004; Miech *et al.* 2005; Ayers 2008; Gillaerts and van de Velde 2010). There has also been particular interest in the study of metadiscourse in abstracts by language learners (e.g., Ozdemir and Longo 2014; Jin and Shang 2016; Nugroho 2019). On the other hand, the relationship between gender, metadiscourse and academic writing in general has not received the same attention. With hardly any studies particularly focused on gender and academic abstracts, there has been some work on gender-based differences in different types of academic writing (e.g., Robson *et al.* 2002; D’Angelo 2008; Serholt 2012; Pasaribu 2017). Tse and Hyland (2008), who admit that gender has been far less studied in academic writing compared to other factors, examine gender differences of metadiscourse in a corpus of academic book reviews. Their results show that males use more metadiscourse overall, but also highlight that gender alone is not the decisive factor in academic writing style, as variation in discipline plays a major role. Similarly, Parasibu (2017), who studied metadiscourse in academic essays, finds that male students use more interpersonal markers but that field-specific differences are more significant than gender-based ones.

## 2.2. *Metadiscourse in Arabic academic writing*

Whereas academic writing in English is well-documented and well-established in the areas of publication and teaching, the story is somewhat different in modern standard academic Arabic. There is, in fact, very little research which examines in detail the linguistic and/or rhetorical features of modern Arabic academic writing, in general, let alone abstracts in particular.

General reference works on academic writing in Arabic are fairly similar in their accounts. Hassan (1996: 68) argues that an academic writer should always aim to “highlight the facts with honesty and objectivity”<sup>2</sup> while avoiding influencing the reader. He also acknowledges the importance of an abstract, in that it is the first part to be read in an academic document after the title, although he focusses on the editorial formalities rather than the language of abstracts. Even though Hassan (1996) does not discuss markers of metadiscourse directly, he highlights a few aspects of academic writing which would contribute to the metadiscourse structure, such as the use of personal pronouns and expressions of emphasis. Al-Shahrani (2010), on the other hand, lists aspects of academic writing which he deems important, including objectivity, explicitness, precision, formality and hedging, albeit with no specific examples. Even when he discusses some linguistic issues related to academic language, the discussion is general at best and seems to reinforce the importance of academic writing being informative, impersonal and minimally rhetorically interactive. Al-Sharif (1996: 153) agrees with this depiction of academic style, noting that repetition, exaggeration, and the use of the first-person are examples of poor academic style. It is worth noting, however, that he does not mention abstracts as a part of an academic research paper.

Amidst this uncertain place for abstracts in Arabic academic writing, it can be said that abstract writing conventions in Arabic are not as standardized as they are in other languages. To start with, as seen in our data, there are at least three different equivalents to the term ‘abstract’ in Modern Standard Arabic, the variety used for formal writing by all Arabic speakers. An abstract in Arabic can be *mulaxxaṣ*, *mustaxlaṣ* or *xulāṣa*, three derivations of one root in Arabic meaning ‘summarize’ or ‘outline’. Furthermore, previous studies analyzing Arabic abstracts are scarce and most of them simply compare Arabic and English abstracts and are based on very small data sets. Alharbi and Swales (2011), for example, described some similarities and differences between the two

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<sup>2</sup> All translations of Arabic quotes and examples are mine.

languages, based on 28 paired abstracts, as they explored the degree of interactivity in the texts. They looked at linguistic features such as the use of first person pronouns, evaluative language and rhetorical moves and indicated a “broad degree of correspondence between the abstracts in the two languages” (Alharbi and Swales 2011: 83). Alotaibi (2015), on the other hand, worked with 44 paired Arabic-English abstracts and noted an overuse of textual markers in both sets. He also reported no variation in the rhetorical organization of the abstracts between the two languages. Alzarieni *et al.* (2019) focused on interpersonal metadiscourse markers in their study of 60 patent abstracts written by native Arabic speakers. Their results show that boosters, hedges and attitude markers are the most frequently used types of interactional markers. The extensive use of boosters is seen as consistent with the field of patents, as they are mainly used to assert the importance of the inventions discussed in the abstracts.

Among the scarce studies on Arabic academic abstracts, some adopted a genre analysis of data rather than focusing on metadiscourse *per se*. Alhuqbani (2013), for example, carried out a genre-based analysis of Arabic abstracts in different fields, with a focus on move structure, based on a corpus of 40 abstracts. He notes that the move structure in abstracts of various disciplines differs greatly, attributing this to the fact that “the Arabic journals’ publication policy [...] leaves the writing of abstracts at the researchers’ disposal” (Alhuqbani 2013: 379). Similarly, Fallatah (2016) compared the move structure of abstracts written by native and non-native speakers by analyzing a total of 93 abstracts divided into those written by Saudi authors in English, Saudi authors in Arabic and international authors. Adopting the genre analysis framework of Swales and Feak (2004), the author concludes that abstracts written by native English and Saudi Arabic speakers reflect a more consistent move structure than those written by Saudi non-native speakers of English. Finally, Bouziane and Metkal (2020) compared the move structures of 112 abstracts in the areas of applied linguistics in three languages: Arabic, French and English. As far as Arabic is concerned, the authors note a difference in conformity with conventions of abstract writing between abstracts written by Middle Eastern writers and those written by writers from North Africa. Despite its small data set for each language, Bouziane and Metkal’s (2020) study sheds some light on the differences in abstract writing among the various Arabic-speaking countries, another area which warrants further research.

It is also worth mentioning that none of these studies on metadiscourse in Arabic academic discourse takes the gender factor into consideration. Only Alqahtani and Abdelhalim (2020) explored gender-based differences in textual metadiscourse of Arabic EFL learners. Therefore, there is a big gap in the literature on metadiscourse in Arabic academic writing, and this study aims to fill this gap by providing some insights on gender-based patterns in the use of textual and interpersonal metadiscourse. Finally, there are other studies which are not directly relevant to the research at hand, although they do shed light on different aspects of metadiscourse and academic Arabic writing or academic English as a second language (L2) by Arabic speakers (*inter alia*, El-Seidi 2000; Sultan 2011; Alhumidi and Uba 2016; Briones 2018; Al-Ghoweri and Al Kayed 2019). Sultan (2011), for example, compared the discussion sections of Arabic and English linguistics research papers written by native speakers of Arabic and English. Sultan finds that Arab writers use significantly more metadiscourse markers than English writers. Briones (2018), on the other hand, analyzed 29 abstracts written in English by native Arabic speakers extracted from three academic journals. Besides presenting insightful observations on the move structure of the data, the paper also raises some questions as to the influence of cultural norms and/or ethnicity of the authors' writing style.

### 3. DATA AND METHODOLOGY

The data for this study was collected from online sources of Arabic academic texts, including websites of Arabic academic journals and research repositories of some universities in the Arab world.<sup>3</sup> The academic field of the collected data was restricted to the humanities and social sciences for two reasons. First, to control for possible variations among different disciplines; and secondly, to allow for a bigger corpus, since it is more difficult to find academic papers in the scientific/medical fields written in Arabic. The data has been divided according to type into two categories: (a) abstracts of journal papers; and (b) abstracts of masters/doctoral dissertations. The data has been further divided by gender into three categories: male, female and mixed gender (i.e. multiple authors of different genders, this only applying to journal papers). All abstracts are written by native Arabic speakers. The total number of abstracts in this corpus is 400, amounting to approximately 73,000 words. Table 1 below shows the breakdown of the corpus.

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<sup>3</sup> The author wishes to acknowledge the contribution of Aya Alchayah, MA in Translation and Interpreting student and graduate research assistant, in collecting the necessary data for this study.

	No. of abstracts / No. of words (male)	No. of abstracts / No. of words (female)	No. of abstracts / No. of words (mixed gender)	Total
<b>Journals</b>	136 / 22,342	84 / 14,430	50 / 8,366	270 / 45,138 (67.5%)
<b>Dissertations</b>	65 / 13,568	65 / 14,229	-	130 / 27,797 (32.5%)
<b>Total</b>	201 / 35,910 (50.25%)	149 / 28,659 (37.25%)	50 (12.5%)	400 / 72,935

Table 1: Corpus data for the study

The corpus was then uploaded to a text annotation program, maintaining the type and gender distinctions.<sup>4</sup> Each sub-corpus was manually annotated for linguistic features of metadiscourse following Hyland's (2019) framework. All data was analyzed word by word, and no pre-existing list of metadiscourse elements was used; however, automatic bulk annotation of certain lexical items was carefully applied and manually checked. A second annotator was asked to review the annotations and the initial percentage of agreement was 85 percent. The quantitative results of the annotations were then downloaded for further processing and visualization purposes. The quantitative aspect in this study is deemed of high importance, given the reasonable size of the corpus on which it is based and the scarcity of other reliable data. It remains a limitation, however, that these results are restricted to the field of humanities and social sciences. Table 2 below summarizes the sub-types of metadiscourse with examples from Arabic.

Category	Function	Examples
<b>Textual/Interactive</b>		
1. Transitional markers	express semantic relations between clauses	بالإضافة إلى ('in addition to') فضلاً عن ('as well as') في المقابل ('in contrast') لكن ('but') بينما ('whereas') بالرغم من ('in spite of') بالتالي ('hence') من ثم ('therefore')

Table 2: Sub-types of metadiscourse according to Hyland and Tse (2004: 169) with added Arabic examples

<sup>4</sup> The text annotation tool used was *Recogito* (Rainer *et al.* 2016), which allows for manual identification and tagging of any word in the corpus with multiple tags (e.g., textual, frame marker). The tool also allows for automatic bulk annotation. For example, if the conjunction لكن (*lākin* 'but') was tagged as a transitional marker, the tool can automatically apply the same annotation to all instances of this conjunction in the corpus. However, even bulk annotations were manually checked for accuracy.

Category	Function	Examples
2. Frame markers	explicitly refer to discourse shifts, sequences or text stages	أولاً ('firstly') أخيراً ('lastly') أما ('as for') تهدف الدراسة إلى ('the study aims') خُصَّ البحث إلى ('the research concludes') ثم ('then') وفي النهاية ('in the end')
3. Endophoric markers	refer to information in other parts of the text	الآتي ('the following') التالي ('the following') مما سبق ('from the previous') ما تقدم ('what precedes') ما يأتي ('what follows')
4. Evidentials	refer to sources of information from other texts	بالنسبة لـ + اسم ('according to ..') قال + اسم ('...says') يقول النحاة/ الفلاسفة ... ( 'grammarians/philosophers say')
5. Code glosses	help readers grasp meanings of ideational material	أي ('that is') يعني ('meaning') بمعنى آخر ('in other words') مثل/ ك ('such as/like') يُسمى ('is called')
<b>Interpersonal/Interactional</b>		
1. Boosters	emphasize force or writer's certainty in message	قد + فعل ماضي ( <i>qad</i> + past tense verb) ( 'is clear') يُوضِّح / تبيِّن ('clearly shows') أكدت النتائج ('results confirm') خاصةً ('especially') لا سيَّما ('particularly')
2. Attitude markers	express writer's attitude to propositional content	للأسف ('unfortunately') تميَّز بـ ('is distinguished') يتَّفَق ('agrees with') مخالفاً ('in disagreement') هام ('important') بارز ('significant') رائع ('excellent') نادراً ('rarely')
3. Hedges	withhold writers' full commitment to statements	قد + فعل مضارع ( <i>qad</i> + present tense verb) ربما ('maybe') يُمكن، من الممكن ('is possible') لعل ('perhaps')
4. Self-mention	explicit reference to the author(s)	الباحث/ة ('the researcher') دراستنا ('our study') فُمنَّا بـ ('we did')
5. Engagement markers	explicitly refer to or build relationship with reader	القارئ ('the reader') يجب أن/علينا ('we have to') من المعلوم أن ('it is known') ينبغي ('should')

Table 2 (continuation)

## 4. RESULTS

### 4.1. Metadiscourse elements by abstract type

The first round of analysis takes abstract type as the main variable. The total annotations are shown in Figure 1 below. The analysis shows that textual metadiscourse markers are the most frequent (2,575 or 53%) of all metadiscourse elements in the corpus. If we compare abstract types, the results show a narrow majority of textual features (1,485 or 51%) of all journal abstracts, while dissertation abstracts recorded a slightly higher majority with 1,090 (or 55%) of total metadiscourse elements being in the textual domain.

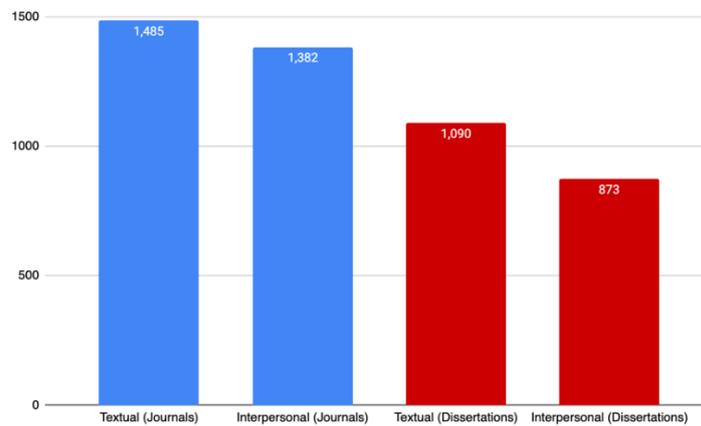


Figure 1: Total metadiscourse elements by type

#### 4.1.1. Textual metadiscourse (TM)

Table 3 below shows a clearer picture of the distribution of textual elements, illustrates the breakdown of its various types.<sup>5</sup> The quantitative results reveal that there is a small difference between journal and dissertation abstracts in the top two sub-types—frame markers and transition markers—which, when combined, constitute between 80 and 84 percent of all textual markers.

<sup>5</sup> See also Appendix 1 for the quantitative data on metadiscourse elements by abstract type with normalized frequency per 1,000 words, and a comparison graph by percentage.

Textual metadiscourse	Journal abstracts	% of total TM	Dissertation abstracts	% of total TM
Transition markers	549	37	416	38.2
Frame markers	634	42.7	506	46.4
Endophoric markers	75	5	28	2.5
Evidentials	138	9.3	68	6.3
Code glosses	89	6	72	6.6

Table 3: Distribution of textual metadiscourse by abstract type

As far as frame markers are concerned, it is noted that the majority of those in both abstract types largely correspond to the main move structures for abstracts (for a chronological summary of abstract moves as identified in the literature, see Briones 2018). In particular, frame markers in the data seem to be following a five-move structure, as a combination of Hyland (2000) and Belcher (2009), favoring a verbal sentence structure as move openers as illustrated in Table 4.

Move type	Corresponding frame markers
Introduction	يتناول البحث ('the research discusses') يتعرض هذا البحث لـ ('this research tackles') تقدّم هذه الدراسة ('this study presents') يسلط هذا البحث الضوء على... ('this research sheds light on')
Aim/purpose	تهدف الدراسة إلى ('the study aims to') استهدف البحث ('the research aims to') يسعى البحث إلى ('the research attempts to') أهداف الدراسة... ('the objectives of the study')
Method/process	يتركز البحث على ('the research focuses on') اعتمد البحث على ('the research depends on') منهجية البحث ('the research methodology') عينة البحث ('the research sample')
Results/conclusions	توصل البحث إلى ('the research arrived at') خلصت / انتهت الدراسة إلى ('the study concluded that') أسفرت الدراسة عن ('the study resulted in') نتج عن هذه الدراسة ('it resulted from this study') من نتائج الدراسة ('among the results of the study')
Recommendations	أوصت الدراسة بـ ('the study recommended that') قدّمت الدراسة توصيات بـ ('the study presented recommendations to')

Table 4: Move types and corresponding frame markers in the data

Apart from signaling text stages in this way, many frame markers in the data use a variety of nouns to refer to different sections of the paper/dissertation, often combined with ordinal specifications such as the first, second, etc., including البند (*al-band* 'the-item'); الفصل (*al-faṣl* 'the-chapter'); المحور (*al-miḥwar* 'the-axis'), in addition to the nouns القسم (*al-qism* 'the-section') and الباب (*al-bāb* 'the-part/chapter') particularly in dissertation abstracts. Finally, the other two items which feature frequently as frame markers in both types of abstracts are the particles أمّا (*'ammā* 'as for'), usually used to signal shifting from one topic to another, and ثُمَّ (*tumma* 'then').

Transition markers, which include a variety of conjunctions and prepositional phrases in the data, are also frequently used with the aim to “help readers interpret pragmatic connections between steps in an argument” (Hyland 2019: 59). He further argues for three sub-types of transition markers which are reflected in the data, as illustrated in Table 5.

Type of transition marker relation	Examples from the data
Addition	كما، ('also') وأيضاً ('and also') بالإضافة إلى، فضلاً عن، علاوة على ('in addition to')
Comparison	كذلك ('similarly') لكن ('but') على الرغم من ('in spite of') ومن ناحية أخرى ('on the other hand') غير أن، في حين، بينما ('whereas') إلا أن ('except that') بالمقابل ('in contrast')
Consequence	فـ.. ('so') ولهذا، ولذلك، ولذا ('therefore') وبذلك ('and with that') ومن هنا، وبالتالي، وعليه، ومن ثم ('consequently') ونتيجة لذلك، يرجع ذلك إلى ('as a result of') وفي ضوء ('and in light of') وبناء على ذلك، ومن هذا المنطلق ('and based on that')

Table 5: Types of transition marker relations according to Hyland (2019) with Arabic examples

Even though the analysis shows a low majority of the addition relation, it is the transition markers used for the consequence relation which show the broadest lexical variety in the data, ranging from one-letter prefix conjunctions (فـ *fa* 'so') to the use of both proximal (هذا *hāḍā* 'this') and distal (ذلك *dālika* 'that') demonstrative pronouns with or without a preposition and to a whole prepositional phrase (e.g., ومن هذا المنطلق *wa min hāḍal muntalaq* 'and from this perspective'). It is also worth noting that, as a stylistic feature of the Arabic language, it is common to combine conjunctions and/or start a clause with the conjunction و (*wa* 'and').

Finally, for journal abstracts, evidentials are ranked among the most used sub-types of textual markers, followed by code glosses and endophoric markers. Journal abstracts use more evidential markers, that is, references to opinions/ideas external to the author; in turn, there is no difference in the frequency of using code glosses, that is, restatement or explanation of ideas in the text, between the two abstract types. Moreover, it is noted that dissertation abstracts show the lowest use of endophoric markers (2.5%) while journal abstracts use double that figure.

#### 4.1.2. Interpersonal metadiscourse (IM)

As for interpersonal metadiscourse, Table 6 below presents the detailed distribution of all its elements in the data. As can be noticed, boosters are the most frequent interpersonal devices in both types of abstracts, especially in journal abstracts which show a higher percentage of boosters than dissertation abstracts. In terms of form, almost 47 percent of all boosters in the data are divided between two particles only: *قد* (*qad*) and *إنَّ* (*'inna*) which are defined as particles for emphasis in Arabic grammar. Examples (1) and (2) illustrate their use.

- (1) (Journals\_F) و(قد) اختيرت عينة عشوائية من الطالبات..  
*wa qad 'uxtīrat Ṣayyina Ṣašwā 'iyya min aṭ-ṭālibāt*  
 'And a random sample of female students have (*in fact*) been chosen'
- (2) (إنَّ) هذا الأمر يستلزم إلقاء الضوء علي كل المتغيرات التي تؤثر على تحقيق هذا الهدف  
 (Dissertations\_M)  
*fa-'inna hāḍa l-'amr yastalzīm 'ilqā' aḍ-ḍaw' Ṣalā kul al-mutaḡayyirāt al-latī tu'attir Ṣalā taḡqīq hāḍal-hadaḡ*  
 'So, this matter (*does*) necessitate shedding light on all the variables which influence achieving this goal'

Note that in these examples both particles are also combined with the frame markers in the form of the conjunctions *and* and *so*, respectively. The essential characteristic of these two examples is that the emphatic particles are grammatically unnecessary, that is, they are optional, but are chosen by the writer to emphasize the message. Other boosters in the data include the verbs أظهرت (*'aḍharat* 'demonstrated'), أثبتت (*'aṭbatat* 'proved'), أوضحت/بيّنت (*'awḍaḡat/bayyanat* 'clarified'), كشفت (*kašafat* 'revealed') and the adverbs خاصةً/لا سيّما (*xāšatan/lāsiyyamā* 'especially').

Interpersonal Metadiscourse	Journal abstracts	% of total IM	Dissertation abstracts	% of total IM
Boosters	565	40.9	300	34.4
Attitude markers	220	16	211	24.1
Hedges	53	3.8	39	4.5
Self-mention	443	32	173	19.8
Engagement markers	101	7.3	150	17.2

Table 6: Distribution of interpersonal metadiscourse by abstract type

One outstanding difference between the two types of abstracts lies in the use of self-mention metadiscourse markers. In journal abstracts, the use of self-mention metadiscursive devices represents 32 percent of all interpersonal markers, being the second most frequent device attested. In dissertation abstracts, self-mention

metadiscursive devices only represent 19.8 percent of all interpersonal markers and are the third most frequent devices found in the corpus. It is worth noting here that in the analysis, the category of self-mention includes the following:

- Instances of using the noun الباحث / الباحثة (*al-bāḥiṭ / al-bāḥiṭa* ‘the researcher-masculine/the researcher-feminine’) or its dual/plural forms.
- Instances of the possessive pronoun suffixes نا / -ي (*nā / iy* ‘my/our’)
- Instances of verbs conjugated with the first person أنا (‘*anā* ‘singular’) or نحن (*nahnu* ‘plural’), taking into consideration that the use of first-person plural could be an engagement marker especially in dissertation abstracts where the author is singular.
- Instances of a passive verb construction which refer to actions performed by the author.

In fact, as Table 7 below shows, the last sub-type, that is, passive verb constructions referring to the author, constitute 51% of the overall self-mentions in the corpus. Therefore, even though self-mention as a whole is used more commonly in journal abstracts compared to dissertation abstracts, authors of both types of texts equally use passive verb constructions referring to the author in almost half the occurrences.

Self-mention markers in the data			
Type	Journal abstracts	Dissertation abstracts	Total
Nouns, pronouns, first person conjugated verbs	212 (47.8%)	90 (52%)	302 (49%)
Passive verb constructions	231 (52.2%)	83 (48%)	314 (51%)

Table 7: Self-mention markers in the data by abstract type

The overall results of interpersonal metadiscourse also show that there are two types of interpersonal elements that are more frequently used in dissertation abstracts compared to journal abstracts. First, attitude markers are the second most frequent type of metadiscursive marker in dissertations (24%). In journal abstracts, by contrast, they only represent 16 percent of the metadiscursive markers found. Second, engagement markers are 10 percent more frequent in dissertation abstracts. According to Hyland (2019: 63), in practice, it is often difficult to distinguish between attitude markers and engagement markers, since both can be considered affective devices. This has been noted in the analysis presented here. Attitude markers, that is, expressions of the writer’s appraisal of propositional content in terms of various emotions, such as surprise, agreement, obligation or importance, are mostly manifest in a variety of adjectives in the data.

However, other syntactic structures are also used to that effect. Some examples of attitude markers are illustrated in Table 8 below.

Type of attitude marker	Example
Adjectives	جاء ('serious'), رائع ('magnificent'), هام/مهم ('important'), بلوغ ('eloquent'), مؤثر ('effective')
Prepositional phrases	من الصعب ('it is difficult') من الضروري ('it is necessary') من المفضل ('it is preferable')
Verbs	يستدعي ('requires'), يعاب عليه ('he/she is shamed')

Table 8: Syntactic types of attitude markers

Engagement markers, on the other hand, may include a number of syntactic features which have relational implications on the discourse and help to bring the reader as a participant in the process of reading. According to Hyland (2019: 58), this could be in the form of an explicit address to the reader with the use of second person pronouns or inclusive *we*. In the data, only the latter was easily identifiable in dissertation abstracts which clearly have a single author. In these cases, all references to the author using a plural pronoun (e.g., أننا 'annanā 'that we'; دراستنا *dirāsatunā* 'our study') or verb conjugation (e.g., نحاول *nuḥāwil* 'we try'; لاحظنا *lāḥadnā* 'we noticed') were counted as an engagement marker. No instances of second person pronouns were attested in the data, although there were a few instances of the term القارئ (*al-qāri* 'the reader') as in (3).

- (3) يقف القارئ مذهولاً أمام الدافع الحقيقي وراء كتابة هذا الكتاب ذائع الصيت.. (Journals\_M)  
*yaqifu al-qāri' maḍhūlan 'amām ad-dāfi? al-ḥaqīqī warā' kitābat ḥāḍal kitāb*  
*dā'i? al-ṣīt*  
 'The reader stands in amazement regarding the real motive behind writing this famous book'

In this example, the writer is trying to involve the reader in the topic of the paper not only by mentioning the noun explicitly but also by using affective language to signal a shared perspective. Other engagement markers which can serve as devices "rhetorically positioning the audience" (Hyland 2019: 63) include questions, obligation modals (e.g., يجب أن (*yajib 'an* 'ought to'); لابد (*lābud* 'must'); علينا (*ʔalainā* 'we have to') and references to shared knowledge (e.g., من المعلوم أن (*minal maʔlūm 'an* 'it is known that'; كما نعلم *kamā naʔlam* 'as we know').

Hedges are the least frequent interpersonal element in both types of abstracts, constituting only 3.8 percent and 4.5 percent respectively of all interpersonal metadiscursive markers. Contrary to boosters, hedges indicate the writer's reluctance to commit to the propositional content and therefore allow for information to be presented

as a personal opinion rather than as a fact. In English, these are typically expressed via adverbs such as *possibly*, *perhaps*, *rather*, etc. In the data, hedges were represented via a variety of lexical items including the verb *يمكن* (*yumkin* ‘could’), the structure *قد* (*qad* ‘may’) plus a present tense verb to indicate possibility, the adverbs *لعل* (*laʔalla* ‘perhaps’) and *ربما* (*rubbamā* ‘maybe’), and the prepositional phrase *إلى حد ما* (*ʿlā ḥaddin mā* ‘to an extent’).

#### 4.2. Metadiscourse elements by gender

The second round of analysis takes gender as the main variable. There are three categories under gender: male, female and mixed gender (for journal papers only). It is worth noting here that the author gender distinction does not correspond to author number; in other words, only the mixed gender category necessarily implies multiple authors, while the other two categories include both single and multiple authors of the same gender. The total number of annotations are shown in Figure 2. As in the previous section, the analysis shows a majority of textual metadiscourse across gender groups, making up 55 percent of all metadiscourse elements used by males (1,326 instances), while this percentage decreases slightly to 51 percent (955 and 294 instances, respectively) for females and mixed gender.

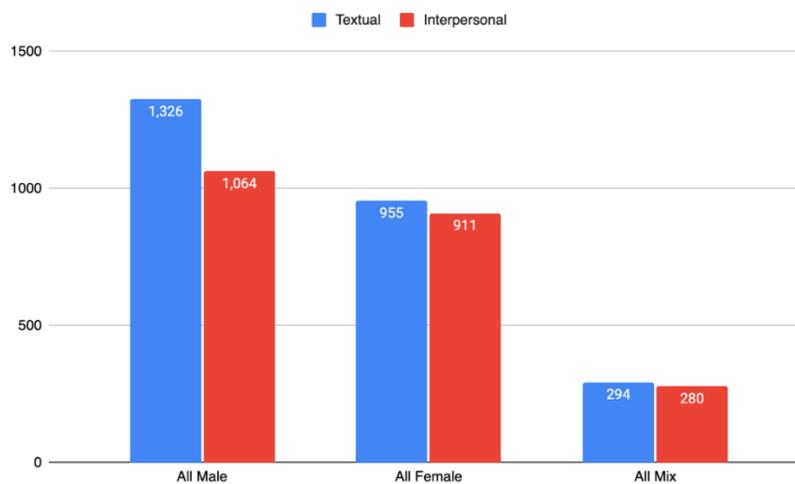


Figure 2: Total metadiscourse elements by author gender

#### 4.2.1. Textual metadiscourse (TM)

In order to obtain a more detailed picture of the distribution of textual elements by author gender, Table 9 below summarizes the breakdown of the various sub-types.<sup>6</sup>

<b>Textual metadiscourse</b>	<b>Male</b>	<b>% of total TM</b>	<b>Female</b>	<b>% of total TM</b>	<b>Mixed gender</b>	<b>% of total TM</b>
Transition markers	508	38.3	361	37.8	96	32.7
Frame markers	595	45	419	43.9	126	42.8
Endophoric markers	50	3.8	32	3.3	21	7.2
Evidentials	86	6.4	89	9.3	31	10.5
Code glosses	87	6.5	54	5.7	20	6.8

Table 9: Distribution of textual metadiscourse by author gender

On the basis of the data, frame markers are the most frequent type of textual metadiscourse used by all gender groups, with male authors using 45 percent of the total metadiscourse markers of this type. This is not a surprising result, given the close correspondence between the use of frame markers and the overall discourse structure of abstracts, as discussed in the previous section. Similarly, transition markers are in second place, with male authors using 38.3 percent of all textual metadiscourse markers of this type.

It is interesting to note that the mixed gender category shows more frequent use of evidentials and endophoric markers in comparison to the other two genders. The female authors are also noted to use more evidentials than male authors, in whose writings only 6.4 percent of the total textual markers are evidentials.

Evidentials are defined as “metalinguistic representations of an idea from another source” (Thomas and Hawes 1994: 129), a crucial feature in academic texts, as evidentials provide important support for the author’s arguments and adds a certain validity to their academic worth. In English academic texts, these markers are typically expressed by an in-text citation from a source, often associated with structures such as *according to x*, *x argues that*, etc. In the Arabic data, two types of evidentials were detected: (a) specified references and (b) unspecified references. The former typically mention the name/year of the reference, sometimes preceded by the expression وفقاً لـ/حسب (wifqan li / hasb ‘according to’). The latter do not mention a specific name, but the author rather makes a general reference to opinions from external sources. These can be expressed by a variety

<sup>6</sup> See also Appendix 2 for the quantitative data on metadiscourse elements by author gender with normalized frequency per 1000 words, and a comparison graph by percentage.

of nouns, including النقاد العرب (*an-nuqqād al-ʿArab* ‘Arab critics’), جمهور الفقهاء (*jumhūr al-fuqahā* ‘the majority of jurists’) or just the vague البعض (*al-baʿḍ* ‘some’).

Endophoric markers, on the other hand, are scarcely used by the female group (3.3%) in comparison to the other two groups and to all other types of textual markers. The main function of endophoric markers is to establish linking relations between different parts of the text. Therefore, expressions referring to preceding or following parts of the text would act as endophoric markers. In our data, most of the endophoric markers were used to refer to parts of the text yet to come, that is, making cataphoric (rather than anaphoric) reference. Example (4) illustrates the two types of endophoric references in the data.

- (4) وإنطلاقاً مما سبق، فإن الدراسة عكفت بالاستناد إلى مقولات النقد النسوي على تحقيق ما سبق من خلال (4) *Journals\_Mix* ثلاثة محاور هي على النحو الآتي:  
*wa-nṭilāqan mimmā sabaq fa 'inna d-dirāsa ʔakaḡat bil-istinād 'ilā maqūlāt al-naqd al-nasawī ʔalā taḡīq mā sabaq min xilāl talāṭat maḡawir hiya ʔala naḡw at-tālī*  
 ‘And based on *what has been mentioned*, the study, relying on works of feminist criticism, set out to achieve *what has been mentioned* through three axes which are *the following*’

In addition to the example above, other endophoric markers in the data include the expressions التالي (*at-tālī* ‘the following’), ما يأتي (*mā ya 'tī* ‘what follows’), فيما يلي (*fi mā ya 'lī* ‘in what follows’) for cataphoric reference (usually followed by a colon), as well as ما تقدم (*mā taqaddam* ‘what was mentioned before’) for anaphoric reference.

The figures of code glosses are rather similar across all gender groups with an average of approximately 6 percent, albeit the female author category is noted to have the lowest percentage (see Table 9). This type of metadiscourse helps writers to explain or elaborate on their propositional content with the aim of facilitating comprehension for the reader. This can be done by providing examples, giving additional explanation, rephrasing part of the text, etc. In the data, it was found that providing examples is the most common purpose of code glosses, where examples are introduced by various expressions from the standard ك/مثل (*ka / miṭl* ‘for example’) to the more elaborate على سبيل المثال (*ʔalā sabīl al-miṭāl* ‘as way of an example’). In addition, different forms of code glosses were used for introducing explanations or rephrasing including أي (*'ayy* ‘that is’), هذا يعني (*mā yusammā* ‘what is called’), بمعنى آخر (*bimaʔnā 'āxar* ‘in other words’), أن (*hādā yaʔnī 'an* ‘this means that’), etc.

#### 4.2.2. Interpersonal metadiscourse (IM)

As far as interpersonal metadiscourse is concerned, Table 10 below presents the breakdown of the distribution of all its elements in the data by author gender. As expected, boosters retain their position as the most widely used feature of interpersonal metadiscourse. The analysis also reveals that the category of mixed gender has the highest percentage of boosters (42.5%), while the female author category has the lowest percentage (35.8%). Example (5) below illustrates a case of double boosters from the mixed gender category.

Interpersonal metadiscourse	Male	% of total IM	Female	% of total IM	Mixed gender	% of total IM
Boosters	420	39.5	326	35.8	119	42.5
Attitude markers	197	18.5	184	20.2	50	17.8
Hedges	43	4	39	4.3	10	3.8
Self-mention	283	26.6	244	26.8	89	31.7
Engagement markers	121	11.4	118	12.9	12	4.2

Table 10: Distribution of interpersonal metadiscourse by author gender

- (5) Journals\_Mix) الأمر الذي يدلّ بوضوح على [...] ويدلّ أيضاً على المكانة الهامة التي...  
*al-'amr al-laḍī yadullu biwuḍūḥ ḥalā ... wa yadullu 'ayḍan ḥalā l-makānat al-hāma al-latī*  
 'The fact that *clearly shows* that [...] and also *indicates* the *important* status which...'

Attitude markers, on the other hand, rank third place across all gender groups, with females showing the highest percentage (20.2%). As, examples (6) and (7) illustrate, female authors tend to accumulate several attitude markers in the same phrase.

- (6) Journals\_F) ويعتبر استخدام الواقع الافتراضي في العلوم المختلفة ضرورة حتمية لا مفر منها  
*wa-yuḥtabar 'istixdām al-wāqiḥ al-iftirāḍiyy fī l-ḥulūm al-muxṭalifa ḍarūra ḥatmiyya lā mafarr minha*  
 'The use of virtual reality in different disciplines is considered an *absolute inevitable necessity*'
- (7) Dissertations\_F) تشير نتائج هذه الدراسة إلى أهمية تقديم خدمة إذاعية هادفة ومفيدة ومثيرة للاهتمام  
*tuṣīru natā'ij hāḍa al-dirāsa 'ilā 'ahamiyyat taqḍīm xidmah 'iḍāḥiyya hādifa wa muḥfida wa muṭira lil 'ihtimām*  
 'The results of this study indicate the *importance* of providing a broadcasting service which is *purposeful, beneficial and interesting*'

Results also show that self-mention is the second most frequent type of interpersonal metadiscourse across all gender groups, with the category of mixed gender exhibiting the highest percentage (31.7%). Looking at the detailed numbers for types of self-mention in Table 11, it is observed that this category shows the highest percentage of passive verb

constructions referring to the author (54%). As mentioned before, passive verb constructions referring to actions performed by the author(s) seem to contribute heavily to the representation of the author(s) in the texts. Passive grammatical constructions in general are impersonal structures in language, and as such they are frequently associated with academic writing. In Arabic specifically, there are two ways to formulate the passive (Ryding 2005: 657): (a) the inflectional passive, which is constructed by altering the vowel pattern of the verb; and (b) the periphrastic passive, which is constructed with the help of a dummy verb meaning completed/finished such as *تمّ* (*tamma* ‘done’). Examples (8) and (9) illustrate the two types respectively.

Type	Male	Female	Mixed gender
Nouns, pronouns, first person conjugated verbs	135 (47.7%)	126 (51.6%)	41 (46%)
Passive verb constructions	148 (52.3%)	118 (48.4%)	48 (54%)

Table 11: Self-mention markers in the data by author gender

- (8) *وقد اختيرت عينة عشوائية من معلمي رياض الأطفال... (Journals\_F)*  
*wa qad 'uxtīrat Ṣayyina Ṣašwā 'iyya min muṢallimī riyāḍ al-atfāl*  
 ‘And a random sample of kindergarten teachers *were chosen*...’
- (9) *وتم تطبيق الأدوات على عينة بلغت خمس وعشرون طالب وطالبة تم اختيارهم عشوائياً من كليتين... (Journals\_M)*  
*wa tamma taṭbīq al-'adātatain Ṣalā Ṣayyina balaḡat xams wa Ṣušrūn ṭālib wa ṭāliba tamma 'ixtiyārahum Ṣašwā 'iyyan min kuliyyatain*  
 ‘And the two tools *were applied* to a sample of 25 male and female students who *were* randomly *chosen* from two colleges...’

In fact, an in-depth analysis of types of passive verb constructions shows that 72.3 percent of all passive constructions in the data are realizations of the periphrastic passive. This percentage is even higher in the male and female groups individually with 80 percent in each being periphrastic passives. There is very little research on the stylistic differences between the two structures; however, Larcher and Girod (1990, quoted in Mansouri 2016: 234) maintain that one of the reasons for the dominance of periphrastic passive in modern standard Arabic is to avoid confusion between active and passive readings of the verb in unvowelized texts. All of our data (with very few exceptions) and most of Arabic academic writing being unvowelized, this explanation seems plausible.

Attitude and engagement markers are most frequently used by the female gender category, while the mixed gender category has the lowest frequency of hedges and engagement markers. In addition to the use of inclusive *we* and modal verbs, expressions of shared knowledge, which can be linguistically manifest in various ways, were one of

the trickiest types of engagement markers to detect. Examples (10) and (11) illustrate some cases from the data:

(10) (Disserations\_M) ومن الأفكار الذائعة في القانون فكرة ارتباط التأمين بالخطر  
*wa min al-'afkār al-dā'iḡa fil-qānūn fikrat 'irtibāḡ at-ta'mīn bil-xaḡar*  
 'And among the common ideas in law is the idea which associates insurance with danger'

(11) (Journals\_F) وبما أن العقل هو المحرك الأساسي للإنسان وللعقل عاداته التي نتصرف بها..  
*wa bimā 'anna l-ḡaql huwa l-muḡarrrik al-'asāsī lil-'insān wa lil-ḡaql ḡādātuh al-latī nataḡarraḡ bihā*  
 'And given that the mind is the main drive for the human being, and the mind has its habits to which we behave accordingly'

Finally, hedges are the least frequent interpersonal metadiscourse markers across all gender groups, with similar range of percentages compared to the results by abstract type.

## 5. DISCUSSION

In general, writing Arabic academic abstracts does not seem to be governed by explicit rhetorical rules. As part of academic writing in modern standard Arabic, it can be said that abstracts assume the status of a 'borrowed genre' (Najjar 1990; see also Al-Qahtani 2006) that has been influenced by academic practices in English (and in French in some parts of the Arab world). As Hyland (2014: 13) explains "academic writers do not simply produce texts that plausibly represent an external reality, but use language to acknowledge, construct and negotiate social relations;" hence, the various features of metadiscourse examined in this study have shown how writers of academic abstracts in Arabic establish such social relations with their audience.

This study attempted to address two research questions: (a) what the overall distribution of metadiscourse elements in Arabic academic abstracts is; (b) what the distributional variations of metadiscourse markers across both abstract type and author gender are. As far as the first research question is concerned, the quantitative analysis in this study is the first to offer a comprehensive overview of the overall distribution of metadiscourse markers based on a substantial corpus of 400 Arabic abstracts. The results have shown that native Arabic speakers writing in the academic genre are aware of the writer-reader relationship nuances and how they can be manipulated. The rhetorical dynamics of Arabic academic abstracts is rich and reflects an intricate mix of writer-oriented and reader-oriented metadiscoursal features. This is manifest in the abundance of both textual and interpersonal markers, where the textual ones only slightly edge over

the interpersonal across all types and groups. This is consistent with previous studies on metadiscourse in English academic texts (e.g., Hyland 1998 on research articles; Hyland 2019 on academic dissertations) and in Arabic ones (e.g., Alotaibi 2015). Therefore, writers of Arabic academic abstracts actively use metadiscourse elements to influence both the readers' understanding of the text and the writer's attitude to its propositional content.

As regards the textual domain, whose function is "to help form a convincing and coherent text" (Hyland 1998: 442) by means of relating parts of the text to each other and to other texts, the analysis shows that transition markers and frame markers are by far the most frequent metadiscourse markers in the data. In the textual domain, such a high frequency of those two features has not been contested in other studies. Dahl (2004b), for instance, who conducted a comparative study of textual metadiscourse in academic papers written in English, French and Norwegian, firmly situates the abundance of textual markers within the Anglo-Saxon tradition of emphasizing the importance of communicating with the reader and making this "an explicit feature of the writing process" (Dahl 2004b: 1821). Similarly, in Arabic academic reference books, the position of the reader is omnipresent, and many justifications for prescribing certain rules in academic writing explicitly mention that it is for the benefit of the reader. Al-Shahrani (2010) even argues that academic writing has a 'special audience' who judge the quality of that writing on the basis of both scientific and linguistic standards. Therefore, it is no surprise that transition and frame markers abound in the data to provide explicit links between different parts of the text. Alotaibi (2015) also concluded that Arabic texts rely heavily on transition markers, especially of the addition relation, and noted the extensive use of frame markers as move openings in Arabic abstracts, which is consistent with the findings in the present study. On the other hand, the results for interpersonal metadiscourse markers reflected some patterns of usage that do not necessarily match those of other studies. Interpersonal metadiscourse, in particular, has been heavily researched as the most personal type of metadiscourse, where the "author's perspective towards both propositional information and readers themselves" is expressed (Hyland 2019: 61). In the present analysis, the results show a strong use of interpersonal elements in Arabic academic abstracts, despite the emphasis on objectivity in Arabic academic writing.

The second research question is concerned with the more specific distributional variations in relation to the two variables: text type and author gender. The analysis yielded some interesting results. Starting with textual markers, evidentials have shown the highest frequencies in journal abstracts and by mixed gender authors. However, in this study the category of evidentials was not restricted to explicit references in the form of an in-text citation. Since Hyland (2019: 61) explains that this type of metadiscourse serves to “distinguish who is responsible for a position” with the aim of strengthening an argument, it was deemed appropriate also to include here what has been labeled as ‘unspecified reference’, such as *some say*, *Arab critics argue*, etc. It is unclear what role such expressions play in academic writing of other languages, but since they do assign certain opinions to sources external to the author, they were included in the data. It is interesting to note, though, that evidentials generally play a more prominent role in English academic writing (e.g., Hyland 1998, 2019), and are especially more frequent in soft disciplines (e.g., Hyland 2004b; Khedri 2018). Also, Ozdemir and Longo (2014) found that native speakers of English used evidentials more frequently in their thesis abstracts compared to non-native speakers. Therefore, it seems that academic expectations regarding references to others’ work can be culture-specific. Patterns of evidentials use in academic texts by gender are scarce, but both Pasaribu (2017) and Yeganeh and Ghoreyshi (2015) found that females tend to use more evidentials to support their arguments. Our results from Arabic are consistent with this tendency, which even seems to influence the mixed gender group to have the highest percentage of evidentials (10.5%) in comparison to the male group (6.4%).

Code glosses and endophoric markers, on the other hand, play a minor role in Arabic academic abstracts. The highest frequency of endophoric markers was 7.2 percent out of the total textual metadiscourse elements (by mixed gender authors), while the lowest was 2.5 percent (in dissertation abstracts). The high frequency in the mixed gender group could be attributed to the fact that those abstracts are written by multiple authors, although this justification needs to be verified by further examination of all multiple author abstracts in the other gender groups. Tse and Hyland (2008) found no major gender-based differences in the use of code glosses and endophoric markers, but in the current study it was noted that female authors have the lowest frequencies of both.

As for interpersonal markers, it is noted that boosters, which emphasize the force of propositions and “imply certainty” (Hyland and Tse 2004: 168), were the most frequent

element in the data with an average of 37.6 percent by abstract type and 39.2 percent by author gender of the total interpersonal metadiscourse markers. It is also noted that journal abstracts had 6 percent more boosters than dissertation abstracts, and mixed gender abstracts had almost 7 percent more boosters than female authors. This contrasts with the use of hedges, which function to downplay the writer's commitment to any certainty. In fact, hedges presented the lowest proportion of interpersonal metadiscourse markers in the data with an average of just 4 percent across abstract types and author genders. The high percentage of boosters in Arabic abstracts is comparable to what Alzarieni *et al.* (2019) found in their data of Arabic patent abstracts, where boosters formed 53 percent of the total interpersonal metadiscourse elements. However, the specificity of patents as a field might be more influential than expected in the way writers balance their commitment to their statements. The same study found that hedges form 42 percent of all interpersonal metadiscourse features. This combination of boosters and hedges shows that hedges can sometimes be used to mitigate boosters. Gillaerts and van de Velde (2010) note the same phenomenon of hedged boosters in their data of English journal abstracts. However, in our study, hedges do not seem to play any significant role, and writers, both male and female, do not shy away from boosting their arguments. In fact, Al-Gublan (2013), who compares the use of hedges in English and Arabic scientific research papers, highlights that English writers tend to use hedges more frequently, while Arab writers avoid them in order to be "more precise and accurate" (Al-Gublan 2013: 205). The high frequency of hedges in English academic writing in general is attested in the literature (e.g., Hyland 1998, 2014, 2019), whereas there is little research on hedging in Arabic academic writing. However, it seems that the high frequency of boosters and low frequency of hedges in Arabic abstracts reflect a tendency for being more straightforward and not open for interpretation.

Self-mention is another interpersonal marker which provides interesting results. According to Hyland and Tse (2004: 170) this type of metadiscourse "reflect[s] the degree of author presence," typically through the use of personal and possessive pronouns. While they acknowledge that English academic writing preaches the avoidance of using the first person, they emphasize the importance of self-mention in creating a "scholarly identity" (2004: 172) for the author. However, care must be taken when comparing frequencies of self-mention for two reasons: (a) studies vary in their delineation of what counts as self-mention; and (b) the use of self-mention in abstracts only cannot be compared to its use in academic writing in general due to the specific nature of abstracts and academic

expectations regarding author presence in them. In our study, self-mentions had the highest frequency in journal abstracts and by mixed gender authors at an average of 31.8 percent of all metadiscourse elements. There was no variation in the frequency of self-mention markers between male and female authors.<sup>7</sup> This relatively high frequency seems to run counter to results in other studies. Alotaibi (2015: 8), for example, argues that the low frequency of self-mentions in his results suggests that “Arabic-speaking writers tend to avoid self-mentions whether they are writing in their first language or in English.” Similarly, Alzarjeni *et al.* (2019) report only two percent frequency for self-mentions in their Arabic data. Alharbi and Swales (2011), who only analyze first person pronouns, report a low frequency of self-mention in the Arabic abstracts and attribute this to “cultural perceptions that the written description of ‘research’ properly requires a more formal style employing the passive and/or self-referring expressions such as ‘this paper/study/research’” (Alharbi and Swales 2011:75). While these results are not completely in line with ours, some observations tie in with our findings regarding the use of passive constructions referring to the author. In fact, the high frequency of passive constructions in the data encourages further investigation into the function of these constructions, and whether they are mainly used to maintain textual cohesion or also contribute to the creation of writer stance (Baratta 2009).

To further confound the issue of self-mention in academic texts, in their study of 72 research article abstracts in English, Gillaerts and van de Velde (2010) ignore two types of the interpersonal metadiscourse elements in their analysis: self-mention and engagement markers. Their reason for excluding self-mentions is that “there is no agreement on their interpersonal effect” (Gillaerts and van de Velde 2010: 131), and that the use of first person pronouns can make a text even less subjective than when they are implicit. Due to limitations of space, this paper does not discuss the different types of self-mention and their role in creating writer identity in discourse in detail. It is worth mentioning, though, that the results of the present study go along the lines of Ivanič’s (1998: 26) assertion that “writers differ considerably in how far they claim authority as the source of the content of the text, and in how far they establish an authorial presence

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<sup>7</sup> One reviewer pointed out that the high percentage of self-mentions in the mixed gender group could probably relate to the fact that it is the multiple author group, and that there is a cultural tendency to give credit to the authors in a multi-authored article but not in single authored ones. While there is no direct research which supports this tendency in Arabic academic writing, it might be worth investigating this aspect in future research (but see Al-Shujairi 2020 who studies self-mention in single-authored research articles only because it guarantees the use of self-mention in a way that multi-authored work does not).

in their writing.” In this study, and as far as Arabic academic abstracts are concerned, a broad definition of self-mentions is warranted as it gives a clearer picture of how far Arab authors establish their authorial presence, whether using explicit references (e.g., personal or possessive pronouns, the noun phrase *the researcher*) or implicit references (e.g., passive constructions).

Finally, another result that does not seem to be consistent with previous studies has to do with engagement markers. Both Alotaibi (2015) and Alzarieni *et al.* (2019) report on an absence of engagement markers in Arabic abstracts. Alotaibi (2015: 8) considers this a surprising result but explains that it indicates that

Arab writers perceive the genre of abstract, whether the English or the Arabic one, to be free from any engagement with the reader as this may project a conversational and an informal tone.

Even in English, Gillaerts and van de Velde (2010: 131) exclude engagement markers from their study on the basis that they are “virtually absent” in abstracts and “because the few elements that may qualify as engagement markers are hardly distinguishable from attitude markers.” Likewise, both Ozdemir and Longo (2014) and Nugroho (2019) report zero occurrences of engagement markers in both native and non-native abstracts. The latter justifies this by arguing that, due to their length and function, abstracts are not an ideal ground to establish a direct relationship with the reader, a feature that is more appropriate for an introduction or a discussion section in academic writing. Indeed, Hyland and Tse (2004) found that engagement markers are a fifth of all interpersonal metadiscourse in dissertations, while in Hyland (1998) engagement markers were the least frequent metadiscourse element with only 3.5 percent of the total. However, in Hyland (2019), engagement markers were strongly present in doctoral dissertations, with the highest frequency in the humanities (applied linguistics).

In the present study, engagement markers were definitely present although not with a high frequency. The highest occurrences were in dissertation abstracts, which formed 17 percent of total interpersonal metadiscourse features. According to Hyland (2014), there are two main purposes for writers to use engagement strategies: (a) to establish a relationship with the readers and include them in the argument; and (b) to position the audience in a particular path and guide their thinking. For the former, in our data, this was exclusively done through the use of inclusive *we*, which appeals to solidarity with the reader, despite warnings in some Arabic academic writing books against using this

structure (see Hassan 1996: 70). For the latter purpose, our data show a variety of elements including questions, obligation modals and representations of shared knowledge. It is believed that a combination of the corpus size and the specification of discipline in this study has led to the detection of engagement markers in Arabic abstracts. After all, Arabic academic writing acknowledges the importance of establishing a relationship with the reader “so that the reader understands the text in the way intended by the researcher” (Al-Shahrani 2010: 15). Engagement markers, though small in number, help to achieve this goal. It was also noted that dissertation abstracts had higher frequencies of both attitude and engagement markers compared to journal abstracts, which may be attributed to the more ‘personal relationship’ of the writer with their dissertation, as a result of a much longer time commitment and dedication. Finally, the results show that both the male and female groups use engagement markers more frequently with little variation (an average of 12%), whereas this percentage drops to just 4 percent when authors belong to a mixed gender group. More research is needed to ascertain the effects of mixed gender on academic writing, but the results here suggest that it leads to the authors focusing more on referring to themselves and less on engaging with the reader.

## 6. CONCLUDING REMARKS

Since its early days when the concept of metadiscourse was vaguely defined as “discourse about discourse” (Kopple 1985: 83), the term has proven to be usefully operationalized for a better representation of the tools at the writers’ disposal to engage with their audience. Hyland’s (2019: 4) theoretical framework employed in this study has helped in understanding abstracts as a “social engagement,” by exploring the ways writers project themselves onto the discourse. This study has shown that writers of Arabic academic abstracts use a wide variety of textual and interpersonal metadiscourse features, and that they use them quite homogeneously. The results indicate high frequencies of transition and frame markers on the one hand, and boosters and self-mentions on the other. The lowest frequencies were for endophoric markers and hedges. The results for self-mentions and engagement markers, in particular, raise some questions regarding the scope of these elements in academic Arabic. In terms of text types, dissertation abstracts have more attitude and engagement markers than journal abstracts, while authors use self-mention

markers more in journal abstracts. In terms of author gender, male authors use frame markers more frequently, while female authors use engagement markers the most.

One important finding in the analysis is that when it comes to the study of metadiscourse, it is worthwhile analyzing data word by word instead of relying on a pre-set data of lexical items for each type. Time-consuming as this task may be, it is a more accurate and reliable method in order to capture instances of metadiscourse. As the analysis here has shown for a language such as Arabic, many categories of metadiscourse can be expressed through a wide variety of lexical items and syntactic structures.

This study intends to provide a solid foundation for the study of metadiscourse in Arabic academic abstracts, whether for stylistic or pedagogical purposes. Yet, one of the limitations of the study is the scope of the discipline. The data analysed here belongs to the fields of humanities and social sciences only. As previous studies have shown, other academic disciplines may have their own rhetorical particularities. Therefore, it is hoped that this study will pave the way for more detailed studies of metadiscourse in Arabic across disciplines, as well as for contrastive studies of Arabic/English academic abstracts based on larger corpora and paying special attention to variations in the nature of metadiscoursal expressions in both languages, as well as to gender-based variations in Arabic academic discourse.

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## APPENDICES

## Appendix 1: Textual and interpersonal metadiscourse elements in journal abstracts and dissertation abstracts

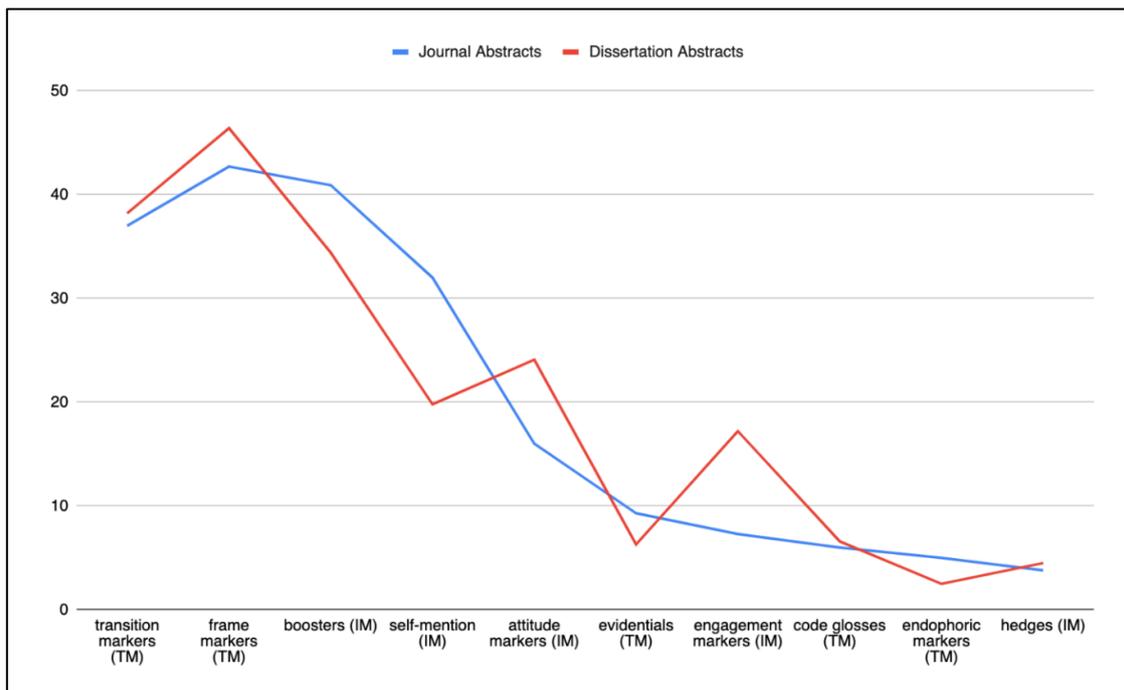
Textual metadiscourse elements in journal abstracts per 1,000 words:

<b>Textual metadiscourse per 1,000 words</b>	<b>Journals</b>	<b>Dissertations</b>	<b>All</b>
transition markers	12.16	14.97	13.23
frame markers	14.05	18.20	15.63
endophoric markers	1.66	1.01	1.41
evidentials	3.06	2.45	2.82
code glosses	1.97	2.59	2.21

Interpersonal metadiscourse elements in dissertation abstracts per 1,000 words:

<b>Interpersonal metadiscourse per 1,000 words</b>	<b>Journals</b>	<b>Dissertations</b>	<b>All</b>
boosters	12.52	10.79	11.86
attitude markers	4.87	7.59	5.91
hedges	1.17	1.40	1.26
self-mention	9.81	6.22	8.45
engagement markers	2.24	5.40	3.44

Comparing percentage of total textual metadiscourse (TM) and of total interpersonal metadiscourse (IM) by abstract type:



## Appendix 2: Textual and interpersonal metadiscourse elements in abstracts by gender

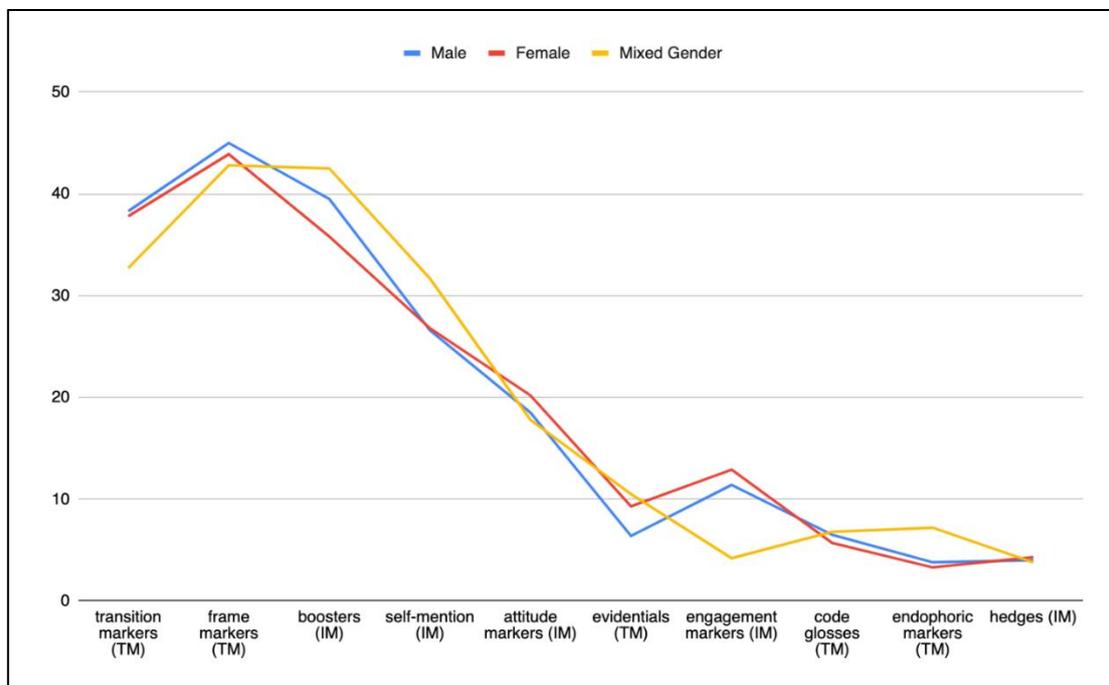
Textual metadiscourse elements in abstracts by gender (per 1,000 words):

<b>Textual metadiscourse per 1,000 words</b>	<b>Male</b>	<b>Female</b>	<b>Mixed Gender</b>
transition markers	14.15	12.60	11.48
frame markers	16.57	14.62	15.06
endophoric markers	1.39	1.12	2.51
evidentials	2.39	3.11	3.71
code glosses	2.42	1.88	2.39

Interpersonal metadiscourse elements in abstracts by gender (per 1,000 words):

<b>Interpersonal Metadiscourse per 1,000 words</b>	<b>Male</b>	<b>Female</b>	<b>Mixed Gender</b>
boosters	11.70	11.38	14.22
attitude markers	5.49	6.42	5.98
hedges	1.20	1.36	1.20
self-mention	7.88	8.51	10.64
engagement markers	3.37	4.12	1.43

Comparing percentage of total textual metadiscourse (TM) and of total interpersonal metadiscourse (IM) by author gender:



## Appendix 3: Transliteration system for Arabic

Consonants:

ص	ش	س	ز	ر	ذ	د	خ	ح	ج	ث	ت	ب	أ/ا
ṣ	š	s	z	r	ḏ	d	x	ḥ	j	ṯ	t	b	'
ي	و	هـ	ن	م	ل	ك	ق	ف	غ	ع	ظ	ط	ض
y	w	h	n	m	l	k	q	f	g	ʔ	ḏ	ṯ	ḏ

Vowels:

Short vowels			Long vowels		
ُ	ِ	َ	و	ي	ا
u	i	a	ū	ī	ā