



A Diagnostic Analysis of Erroneous Language in Iranian Medical Specialists' Research Papers

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Abstract

Background: As English has increasingly become the lingua franca in science and international journals require native-like academic writing standards from nonnative researchers, there is more pressure on nonnative scholars to write their research articles more accurately and appropriately in English.

This study was conducted to determine the most-occurring language-related errors which Iranian medical authors/researchers commit while trying to have their research published in international English journals. Also, this article seeks to provide useful guidelines to reduce such linguistic mistakes.

Methods: The present study investigated the most common language-related errors in Iranian medical specialists' research articles. To this end, the first drafts of 60 published research articles in medical sciences were cross-checked against their peer-reviewed published versions in order to identify the most frequent non-target language forms which received discursal, lexical, grammatical, and mechanical revisions by peer editors.

Results: The findings revealed that the editors had surprisingly dealt with discursal errors more than any other linguistic aspects of these research articles. This was followed by lexical replacements. In third place were grammatical improvements, where erroneous structures mostly related to tenses, usage of articles and prepositions, and agreement between verbs and nouns were treated. The least common revisions were on the mechanics of academic writing, consisting of hyphenating, spelling, case lettering, spacing, and spacing with commas.

Conclusion: Although most of the Iranian medical authors/researchers enjoyed a good level of proficiency in English, their manuscripts required discursal, lexical, grammatical, and mechanical revisions before publication in credited international journals.

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Introduction

Academic writing is featured significantly in writing research articles in various disciplines such as the medical field. The objective of reaching out to the scientific community and gaining academic recognition requires that a

researcher's work be publicized via an international vehicle. Indeed, the advancement of medical knowledge would be impossible nowadays without scientific networking across borders. The continuous growth of English as the global medium has rendered it the current language of choice in academic publishing. Certainly, the application of English

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to international communication can facilitate the networking and transferring of ideas among disciplines.¹

However, the English language is one of the most meaning-carrying and simultaneously vaguest concepts in the mind of many nonnative English-speaking (NNES) people. It becomes even vaguer when linked to scientific research practices. On the one hand, the English language is a foreign language for most NNES researchers and in particular for Iranian researchers, whose language proficiency is lower than their NES counterparts'; and on the other hand, an acceptable command of the English language and especially academic writing ability is required in international scientific publications.

Several studies have been carried out to investigate the scientific writing of NNES students in L1 (first language) settings. Shaw² examined several influencing factors in the writing of NNES science graduate students by interviewing the participants in England while writing dissertations and reported vocabulary as the most substantial factor in causing difficulty. Flowerdew³ explored journal paper writing in Hong Kong by concentrating on Hong Kong scholars working in various majors and reported that two-thirds of these subjects said that they were at a disadvantage while writing papers in English compared to their NES counterparts.

Research on English for publication purposes has increased in the 21st century: works done in Poland,¹ Venezuela,⁴ Sudan,⁵ and Italy⁶ are all a case in point. There are, however, no studies of this kind carried out in an Iranian context. It is this gap in the literature that the present study aims to fill by seeking answers to the following questions:

Q1. What are the most common discursual problems undergoing revisions in manuscripts peer edited by medical specialists as convenience editors?

Q2. What are the most common lexical problems undergoing revisions in manuscripts peer edited by medical specialists as convenience editors?

Q3. What are the most common grammatical problems undergoing revisions in manuscripts peer edited by medical specialists as convenience editors?

Q4. What are the most common mechanical problems undergoing revisions in manuscripts peer edited by medical specialists as convenience editors?

The present study explores language-related issues in journal article writing by Iranian medical professionals. English has been a scientific barometer in medical universities and particularly in producing research outcomes in Iran. Although medical students become very well familiar with the medical language, including medical terminology and genre, during their studies in university, writing a research

article in English is not an easy-going task for most novice Iranian medical researchers, whereas their more experienced colleagues are more likely to possess a better command of English, especially in producing a research article. This appears to be consistent with Swale's⁷ notion that experience is a prerequisite for successful publication. This higher level of English proficiency in experienced researchers has plus points for novice or low proficient ones because novice authors/researchers can seek assistance from their more proficient colleagues by soliciting them to proofread and check their research outputs, thereby augmenting the accuracy level of their written texts. Also, such manuscripts are more likely to be accepted against the gate-keeping criteria of prestigious journals since many journals highly require that researchers have a native speaker check their first drafts ahead of submission.⁸ However, in countries such as Iran with low access to native speakers, checking or proofreading the manuscripts is done by field specialists, whose language proficiency is high, or by English language experts like English teachers, who are the only native-like English speakers in proximity.⁹ Such instances of proofreading or editing which are done by field professionals or English language specialists are called convenience editing because of their convenient accessibility.¹⁰

Considering these issues and opting to explore the language burdens which Iranian medical researchers experience, the current study concentrated on first drafts written by Iranian medical staff and compared them with their published versions in internationally accredited journals. Such a comparison allowed the researchers to find out which areas of language in a research article receive more revisions from medical convenience editors. In the long run, such findings can act as an indicator to highlight the problematic and difficult aspects of the language that present challenges to medical authors and in particular novice ones and help them preemptively address these most common language-related concerns in their manuscripts.

Methods

The present study is exploratory, descriptive, and comparative in nature, and its design is principally correlational insofar as it explains the observable facts as they take place naturally with no experimental intervention.

Corpus

The corpus of the current study is published articles and their first drafts. The importance of health care in individuals' life and society¹¹ led us to concentrate on the written medical genre. Our analysis included 60 medical research articles published by Iranian writers along with their first drafts to scrutinize nonnative written manuscripts which received

convenience editing and afterwards, judge them against their published versions to discover which linguistic modifications had been implemented on the first draft to meet publication principles.

Considering the availability and accessibility of Iranian published medical articles, 17 journals with impact factors (IFs) between 0.822 and 5.119 were chosen as most of the Iranian research articles were published in these journals. To the best of the researchers' knowledge, journals with higher IFs have seldom published research articles by Iranian authors. The selected journals are given in the appendix.

Full length texts of 112 research articles composed by Iranian medical scholars were acquired from Elsevier or Springer publishing companies. Next, the authors of the published articles were contacted, via their contact information in the published papers, and asked for the first drafts of their papers. Out of the 112 published research articles, only 60 first drafts of 60 published papers were included in our final analysis; either because some authors failed to share their first drafts or because our cross-checking of the drafts against their published versions yielded little language editing on the original copies.

It is necessary to note that in order to obtain a more comprehensive result, research background and the amount of experience of each author/researcher was asked through e-mail correspondences.

Data categorization

In order to scrutinize and compare the manuscripts with their published versions, initially four main categories of modification were selected: discorsal, lexical, grammatical, and mechanical. A brief explanation of each category is given in Table 1, and their instances are provided in the results section.

Table 1. Language-related categories in revisions

Categories	Definition
Discorsal	Revisions that deal with text not word or sentential level and relate to coherence, cohesion, and meaningfulness of whole text
Lexical	Revisions and modifications on vocabulary
Grammatical	Revisions that deal with improving grammatical correctness Subdivided into modifications on tense, use of prepositions, use of articles, and singular/plural
Mechanical	Formatting or cosmetic changes without changing the meaning

Table 2. Frequency and percentage of each type of revision

Categories	Discorsal	Lexical	Grammatical	Mechanical	Total
Frequency	567	338	216	170	1291
Percentage	43.92	26.18	16.74	13.16	100

Results

The corpus was closely investigated to discover the linguistic obstacles which medical authors encounter, mindfully or unmindfully, while writing their research outputs. Some observed instances are reported in four discrete tables of discorsal, lexical, grammatical, and mechanical modifications to ensure better classification, and the frequency and percentage of each type of modification are presented in Table 2.

As is evident from Table 2, the total number of revisions was found to be 1,291 cases. Understandably, the most frequent revision was related to discorsal modifications, with 567 (43.92%) occurrences. Lexical revisions, responsible for slightly more than one-fifth (26.18%) of the occurrences, were placed in second position. Third place belonged to grammatical improvements, with 216 (16.73%) cases. The least rate of editing, which was slightly more than one-tenth (13.16%) of the occurrences, was assigned to mechanical alterations.

Sections 4.1 to 4.4 further clarify the results by providing descriptions along with some instances extracted from the corpus of the current study. The extracts are presented as original written part in the first draft and as published written part after revision (Tables 3 to 6)

Discorsal modifications

The medical rough drafts were found to have been highly attractive to the convenience editors when discorsal problems mattered because the most occurring revisions were of the discorsal type. The discorsal errors committed by the medical authors were mostly in relation to coherence (meaningfulness), wordiness, and inappropriate passivization. Table 3 shows some of the discorsally problematic instances.



Table 3. Discoursal modifications instances

Coherence (meaningfulness) & wordiness

Original: Once at baseline and the second one at twelve hours later
Published: at baseline and 12h later

Original: One non-pregnant Holstein cow was used as lymphocyte donor.
Published: The lymphocytes from non-pregnant Holstein cow (lymphocyte donor) were used.

Original: non-pregnant cows from days 4 to 7
Published: In 4th to 7th day samples

Original: SFI values were near zero.
Published: There were no significant differences between groups at baseline.

Original: Once at baseline and the second one at twelve hours later.
Published: at baseline and 12h later

Original: Pasturellosis and Tyzzer are the most prevalent diseases.
Published: Pasturellosis and Tyzzer are the two most prevalent diseases.

Original: in a community based sample of Iranian adults
Published: in a sample of Iranian adults

Original: Both Omentin and Leptin levels significantly decreased by using Metformin in women.
Published: Metformin decreased both Omentin and Leptin concentrations in women.

Original: 2224 women and 928 men
Published: A total of 2,224 women and 928 men

Original: Patients were included if they were between 18 to 65 years old.
Published: Patients between 18 and 65 years old were included.

Passivization

Original: Which already was described
Published: The protocol described elsewhere

Table 4. Lexical modifications instances

Original: Samples were kept for 15 minutes.
Published: Samples were incubated for 15 minutes.

Original: Results were reported.
Published: Means were reported.

Original: two-times
Published: twice

Original: factorial ANOVA
Published: factorial analysis of variance (ANOVA)

Original: Three thousands six hundreds and seven consecutive patients
Published: 3607 consecutive patients

Original: used/ indicating/ repair/ simulating/ induce/ moreover/ remedies
Published: utilized/ providing/ support/ favorable/ promote/ similarly/ treatments

Original: outstanding/ a day/ confirmed/ ulcers
Published: main/ daily/ showed/ ulcerations

Original: 3 fold
Published: three-fold

Table 5. Grammatical modifications instances

Tense-related

Original: The participants of the study are patients who...
Published: The participants of the study were patients who...

Preposition-related

Original: 8-10
Published: 8 to 10
Original: between June 2008 to September 2010
Published: between June 2008 and September 2010
Original: Contribution in
Published: Contribution to
Original: Consisting of 70% to 87% of the population
Published: Consisting of 70-87% of the population

Article-related

Original: To evaluate of production of antibody
Published: To evaluate the production of antibody
Original: A male sheep
Published: male sheep
Original: To answer such inquiry
Published: To answer such an inquiry
Original: Patients of present study
Published: The patients of the present study

Singular/plural

Original: Poly clonal Abtitors defined by ELISA after immunization were reported 32000.
Published: Poly clonal Ab titer defined by ELISA after immunization was reported 32000.
Original: days 1 to 3
Published: 1st to 3rd day
Original: Production, purification and HRP conjugation of poly clonal IgGis described.
Published: Production, purification and HRP conjugation of poly clonal IgGare described.
Original: Each of RIT data was analyzed.
Published: The data were analyzed.

Table 6. Mechanical alterations instances

Hyphenating

(Hyphenating)

Original: Immuneaffinity
Published: Immune-affinity
Original: Short term/ long term
Published: Short-term/ long-term
Original: mid-point
Published: midpoint
Original: multi-center
Published: multicenter
Original: Consisting of 70% to 87% of the population
Published: Consisting of 70-87% of the population

Case-letter

Original: sil
Published: SIL

Spacing

Original: Newzealand
Published: New Zealand

Spelling

Original: Annaemia
Published: Anemia

Comma

Original: Moreover the results revealed that
Published: Moreover, the results revealed that
Original: Although this study is in line with previous findings results revealed that
Published: Although this study is in line with previous findings, results revealed that



Lexical replacements

The second most occurring revisions were lexical modifications. As is shown in Table 4, the lexical changes included changing the verbs, nouns, and adjectives as well as any single word replacements.

Grammatical improvements

Grammatical improvements held third place among the other revisions. Our analysis of the first drafts and subsequent comparison with their published versions revealed that the main grammatical focus was on four areas: tense-related, preposition-related, article-related, and singular/plural agreement. Table 5 provides some instances of each area.

Mechanical alterations

The fourth mostly observed revisions were apropos mechanical alterations, including hyphenating, case lettering, spacing, spelling, and, spacing with commas. Accordingly, some instances elicited from the corpus are provided in Table 6.

Discussion

The main objective of the present study was to investigate medical professionals' language-related problematic areas while academically writing their research output. Harmer¹² posited that written manuscripts often undergo revisions on various categories of word order (syntax), grammatical agreement (concord), and words which go together (collocation) or word choice. In line with the research questions, the findings of this study are further analyzed and discussed under four major themes: discursal, lexical, grammatical, and mechanical alterations.

Discursal modifications

As was mentioned above, discourse-related problems while writing for academic acceptance and then publication received the convenience editors' attention more than did the other problematic areas. Benfield¹³ and Gosden¹⁴ claimed that linguistic problems cause writers to produce more than one draft to satisfy the editors and reported that grammar, word choice, and inappropriate register or style, which comes under grammatical editing, account for most of the modifications which editors bring to bear on rough drafts, which is not consistent with the findings of the present study.

The reason for the higher proportion of discursal revisions may be found in the Iranian foreign language educational system. Until a decade ago, the main focus of language classes was on learning and practicing grammar at the

expense of discursal concerns. Therefore, it was predictable that discursal corrections would top grammatical or even lexical ones.

Adding to this explanation is the difference between the Benfield¹³ and Gosden¹⁴ context and the Iranian context. The former is an English-as-a-second-language (ESL) context, while the latter is an English-as-a-foreign-language (EFL) one. As Fallahi¹⁵ rightly asserts, due to its being a dominant language in native-speaking regions, English in ESL settings is viewed, used, and even learned distinctly in comparison with that in EFL programs. Fallahi¹⁵ holds that in the ESL milieu, learners live in the social context of the dominant language; consequently, they have more chance to be in direct contact with English. By definition, the ESL context allocates much more time to learning and simultaneously using English than does the EFL setting. In contrast, in the EFL environment, the only opportunity for learners to be in contact with English is limited to language classes. Learners in the ESL milieu experience authentic interaction with a real linguistic community. Similarly, English is a language not only for learning but also for thinking, interacting, and entertaining as well as benefitting from media outputs and even working in the ESL context. Discursal improvements, therefore, occur gradually and even unconsciously. It seems to echo Harmer's¹⁶ notion that discourse is "the use of language in context over a long period".

Lexical replacements

With respect to the lexical changes applied on the rough drafts of the Iranian papers, stylistic modifications were the most observed type of changes that the Iranian medical professionals' first drafts had received prior to publication. Understandably, this kind of editing comprised the cases in which the convenience revisers had replaced one lexical item with another to achieve to a better version of the sentence under analysis in terms of clarity and precision. Such alterations were generally a matter of taste on the part of the revisers and authors/researchers may, as such, find them unavoidable and unpredictable. Thus, as far as lexical modifications are concerned, stylistic changes were the most frequently occurring revision type. It would be safe to assume that many of the convenience editors and even journal reviewers in internationally accredited journals are native English speakers. As a consequence, a word or phrase used by Iranian writers may not be deemed appropriate in a given academic context by NES editors, which may add to the number of modifications implemented on manuscripts submitted by Iranian authors. This part of the observations might not be comparable with the previous literature since no similar study has probed it systematically, to the best of our knowledge.

Grammatical improvements

Regarding grammatical revisions, verb-tenses, prepositions, articles, and singular/plural agreement appeared to be the most occurring errors highlighted by the revisers in this study. As was mentioned in the discursal modifications section, due to the teaching-learning focus on grammatical practices in Iranian foreign language schools until a decade ago, grammatical improvements were not seen as necessary as discursal modifications by nit-picking editors. Considering grammar as the main focus in language training seems to echo Howatt's¹⁷ view inasmuch as he posited that traditional approaches to second language learning put greater emphasis on teaching grammatical issues. Such an emphasis was considered as an aid to reading the texts in the target language. However, the Iranian medical researchers tended to avoid using conjunctives in their manuscripts. Likewise, some of them committed incorrect usages of modifiers as well as the passive/active voice. Some useful tips regarding grammar-oriented errors are provided in the mechanical guidelines section of this survey.

Mechanical alterations

As for the mechanics of writing, the most observed instances in the analysis of the medical specialists' written outputs could be classified into five sub-parts: hyphenating, case lettering, spacing, spelling, and spacing with commas. Nevertheless, the frequency of these types of errors was not as high as that of the other types. Our findings clearly demonstrated that the mechanics of academic writing, though to a lesser extent than discursal, lexical, and grammatical issues, is a thorny issue for Iranian medical authors. Next Section recommends some useful tips to improve the use of mechanics in academic writing.

Academic writing guidelines and recommendations

Based on the findings of the present study, almost many of the Iranian medical authors/researchers possessed an acceptable language proficiency in academic writing. As was mentioned in the methods section, some first drafts were excluded from the analysis because our cross-checking between them and their published versions showed little editing work applied to them by the editors, which is, of course, a testament to the writers' acceptable command of English, especially in academic writing. However, in the 60 articles which were examined in this study, various rates of language revisions were implemented. The number of alterations executed on the written outputs produced by the novice researchers/authors was significantly higher than that carried out on the written drafts by the more experienced scholars.

The following part includes some tips addressing novice

medical researchers who wish to enhance their academic writing ability. Some of these tips are provided based on the observations of the present study regarding language-related obstacles which most inexperienced medical authors are likely to face. However, some other tips are based on the overall observations of the researchers of the present study throughout their teaching experience as EFL/ESP teachers. Also, the recommended comments are classified in three groups of discursal, grammatical, and mechanical guidelines. It goes without saying that no lexical comment is offered here. It is because the use of appropriate vocabulary is something that is mostly related to individuals' vocabulary learning strategies. Additionally, the acceptance of any lexical choice by editors while reviewing manuscripts is related to their judgment as well as the appropriacy of the selected words with respect to the target context.

Discursal guidelines

Coherence

Tip 1: Manuscripts should be written precisely, clearly (without ambiguity), relevantly, and as succinctly as possible without wordiness.

Tip 2: Using the following phrases can increase the coherence, relevance, and clarity of a text:

The fact that, once again, at that point in time, not only, but also, many, most, some, the most common, often, oftentimes, sometimes, usually, a few, a little, greater, extremely, for many reasons, such as, just as, of this, means that, when it comes to, all these, therefore, thus, consequently, as a result of, in general, after all, to name a few, can be established that, as noted, on the part of, in other words, put it another way, play a role, due to, as to why, whereas, whilst, by means of.

Passivization

Tip 3: In order to avoid wordiness and write clearly, the use of passive voice should be minimized as much as possible.

Incorrect: By manipulating the lower back, the pain was greatly eased. (It implies that the pain was doing the manipulation.)

Correct: By manipulating the lower back, the therapist eased the pain.

Style

Tip 4: Slang or any informal diction should be avoided.

Tip 5: Anecdotes or scenarios should be avoided.

Tip 6: Commands to readers such as, be sure to, or similar phrases should be avoided.



Negative/affirmative

Tip 7: It is better to avoid negatives such as did not. Instead, the use of verbs such as failed is recommended.

Reference

Tip 8: When referring to people, the pronoun who should be used not that. In academic writing, that is utilized only to refer to things.

Grammatical guidelines

Contractions

Tip 9: Contractions should be avoided. Can't should be written cannot.

Use of gerunds (ing words)

Tip 10: Change 'which' or 'that' phrases to an -ing word.
 Incorrect: The patients that suffer from diabetes included to the present study.
 Correct: The patients suffering from diabetes were included in the present study.

Possessives

Tip 11: When writing possessive nouns, apostrophes for singular and plural noun forms should be used properly: e.g. one participant's blood test/12 participants' blood tests

Pronouns

Tip 12: Use of too many pronouns such as he, they, it, etc. is not recommended.

Tip 13: Vague pronouns: when using it and this, a specific reference should be available.

Subject/verb agreement

Tip 14: When using plural/singular nouns, there should be agreement with verbs in number and person.

Verb tenses

Tip 15: Appropriate use of tense means paying attention to consistency in verbs' tenses within the text. Tenses should not shift from the present to the past or vice versa.

Modifiers

Tip 16: Modifier is a phrase or word that describes

something. It should refer to the element that modifies.
 Incorrect: The council advises physicians at regular intervals to administer the drug.

Correct: The council advises physicians to administer the drug at regular intervals.

Correct: At regular intervals, the council advises physicians to administer the drug.

Parallelism

Tip 17: Items in a series need to have similar grammatical form.

Incorrect: I enjoy helping, feeding, playing, and to support animals.

Correct: I enjoy helping, feeding, playing, and supporting animals.

Conjunctions

Tip 18: Conjunctions are of three types. They join parts of a sentence together and express the relationship between them.

1. Coordinating conjunctions: for, and, nor, but, or, so, yet
 They join words, phrases, or clauses that are equally important in a sentence.
2. Correlative conjunctions: both...and, not only... but also, either...or, neither...nor, whether...or, not...so much as
 They join words, phrases, or clauses and they are always used in pairs to emphasize the way that two things are related.
3. Subordinating conjunctions: are mostly of four main types; time, cause and effect, opposition, and condition. Some examples for each type are provided in Table 7.

Mechanical guidelines

Comma

Tip 18: Use a comma after each item in a series of three or more

Incorrect: Streptobacillusmoniliformis is highly pleomorphic, Gram-negative, non-motile, fastidious, slow growing and anaerobic organism.

Correct: Streptobacillusmoniliformis is highly pleomorphic, Gram-negative, non-motile, fastidious, slow growing, and anaerobic organism.

Tip 19: Use a comma when you join independent clauses with one of the seven coordinating conjunctions (conjunctions section).

Tip 20: Do not use a comma to separate subject and verb.
 Incorrect: His enthusiasm for the subject and his desire

Table 7. Subordinating conjunctions (which join independent clauses to dependent ones)

Time	Cause and effect	Opposition	Condition
afterwards	because	however	if
prior to	since	although	unless
later on	in order to	despite	only if
when	so that	in spite of	in case
while	therefore	on the other hand	provided that
once	thus	as though	assuming that
as long as	consequently	rather than	as much as
	as a result/consequence	whereas	
	then	while	

Appendix: Medical journals

Name of Journal	Publisher	Impact factor (Year)
Pediatric Journal	Springer	IF: 5.119 (2013)
Apoptosis	Springer	IF: 4.788 (2012)
Biochemical Pharmacology	Elsevier	IF: 4.705 (2012)
Clinical Nutrition	Elsevier	IF: 4.093 (2013)
Urology Journal	Springer	IF: 4.02 (2013)
Antiviral Research	Elsevier	IF: 3.905 (2013)
Molecular Imaging & Biology	Springer	IF: 3.844 (2013)
Drug & Alcohol Dependence	Elsevier	IF: 3.383 (2012)
Supportive Care in Cancer	Springer	IF: 2.597 (2012)
Canadian Journal of Cardiology	Elsevier	IF: 2.255 (2011)
Theriogenology	Elsevier	IF: 1.898 (2012)
Online Journal of Veterinary Research	Springer	IF: 1.811 (2013)
Pain Management Nursing	Elsevier	IF: 1.533 (2009)
Homeopathy	Elsevier	IF: 1.012 (2012)
Australian Critical Care	Elsevier	IF: 0.973 (2013)
Archives of Psychiatric Nursing	Elsevier	IF: 0.921 (2009)
Veterinary Research Communications	Springer	IF: 0.822 (2013)

to be of help, led him to volunteer.

Correct: His enthusiasm for the subject and his desire to be of help led him to volunteer.

Semi colon

Tip 21: Use a semicolon and a conjunctive adverb to connect two independent clauses.

Incorrect: It seems likely that mineralocorticoid receptor lowers the risk of renal disease, however, randomized clinical trials evaluated the effects of addition of aldosterone blockers.

Correct: It seems likely that mineralocorticoid receptor lowers the risk of renal disease; however, randomized clinical trials evaluated the effects of addition of aldosterone blockers.

Capitalization (case-letter)

When in doubt, capitalization should be avoided. It is suitable only for specific, named individual items or people.

Conclusion

Although one study alone cannot be generalizable to all contexts, it seems that the present study was able to reveal some practical linguistic deficiencies or difficulties with which medical field researchers are faced at least in an Iranian context. We hope that the findings can be helpful in reducing some language-related burdens when ‘publish or perish’ circulates in scientific environments. However, further research in the same ground or perhaps with a focus on challenges in other contexts could confer more comprehensive results with respect to writing for publishing in the future.



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