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ASSESSING DIFFICULTIES IN COMPREHENSION AND LINGUISTIC MISTAKES IN SPECIALIST'S CONSULTATION LETTERS

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ABSTRACT

Background:-

Prior studies concerning specialist's reply letters to primary care physicians related to several topics, most of them associated with the communication between the two groups of physicians.

Objective:-

The aim of the current study was to examine the reasons for difficulties in comprehension and the presence of linguistic inadequacies in consultation reply letters.

Methods:-

Fifty reply letters composed by specialists from hospital and community clinics were randomly selected. One sentence from each letter that was classified as not clear enough was selected for composing a questionnaire which graded the sentences using a scale of five grades, from understandable to unclear. Twenty four Primary care physicians graded the sentences. Sentences which were not graded as "understandable" were analyzed using linguistic criteria. Additionally, a sample letter was analyzed in order to summarize the linguistic inadequacies and to examine structural mistakes.

Results:-

Only eighteen out of fifty sentences (36%) were graded as understandable or understandable with linguistic mistakes and the rest were graded as partially understandable to unclear. Several types of mistakes were found: lack of details, lack of relevance, ambiguous abbreviations and improper use of connectives. In addition linguistic and structural mistakes were found in the example letter.

Conclusion:-

Consultation letter writing is an essential skill for specialist physicians. The findings of our study suggest that the quality of many of the specialist's reply letters should be improved in order to ensure optimal patient care. We suggest several measures that may be taken in order achieve this goal.

KEY WORDS: *Consultation reply letters, primary care physicians, abbreviations, level of comprehension, linguistic analysis.*

INTRODUCTION

Referral of patients from primary care to specialists for consultation is an important part of primary care physician (PCPs) practice. Prior studies concerning the subject related to several topics, most of them associated with the communication between specialists and PCPs. Foy et al conducted a meta-analysis and suggested that interactive communication between PCPs and specialists may improve the collaboration between them (1). O'malleys et al reported that when surveyed only one third of the specialists replied that they received notification of the patient history and reason for consultation and only 60% of the PCPs replied that they received the consultation results (2). Stille et al examined general pediatrician's referrals and found that only third of the general pediatricians informed specialists regarding the patient's history and the reasons for consultation and only 62% of the specialists communicated with the general pediatricians following the initial consultation (3). Durbin et al found that the use of structured forms may improve the communication between PCPs and mental health professionals (4). Electronic consultation improved communication and satisfaction according to a survey conducted in the veteran health system (5). A study conducted by Jansen et al concluded that communication between hospitalists and PCPs was deficient and that the discharge letters were inadequate and this was reflected by medical errors relating to change of care (6). Moore et al found that 49% of the patients discharged from an academic medical center experienced at least one medical error relating to change of care (7). Additionally, many abbreviated terms which were found in discharge letters from hospitals were not recognized by the primary care physicians (8). Most studies relate to the level of communication between PCPs and specialists. Our search of the existing literature did not find studies relating to the level of comprehension or linguistic analysis of specialist's reply letters to PCPs following consultations. When examining specialist's reply letters we found that many of the letters were difficult to understand due to various reasons.

OBJECTIVES

The aim of the current study was to examine the reasons for the difficulties in comprehension and to examine linguistic inadequacies included in specialist's reply letters to PCPs following consultations.

METHODS

The corpus of the study included fifty specialist's electronic reply letters to PCPs. Letters were selected from five specialties: ophthalmology, orthopedic surgery, vascular surgery, gastroenterology and nephrology (10 letters from each specialty). Half of the letters from each specialty were composed by specialists working in tertiary care university hospital clinics and half from specialists working in community based clinics. The letters were selected during the period of 10 January to 25 January 2016; the third consultation reply letter composed during each working day was picked up.

No more than two letters written by the same specialist were included in the study. All identifying details of the patients and physicians were removed from the consultation letters.

One sentence from each letter, which showed inadequacies according to the author's opinion (senior internal medicine specialist and a lecturer and investigator in linguistics), was used for further analysis, including the composition of a questionnaire.

The Questionnaire included the sentences, each followed by five grades: understandable, understandable with linguistic mistakes, partially understandable, partially understandable but with linguistic mistakes and unclear.

Twenty four PCPs were asked to fill the questionnaire and grade the sentences, all of them complied. Grading of the sentences was performed. In three cases two replies received the same number of grades, and final grading was resolved by discussion between the authors. Sentences which did not receive an "understandable" grade were analyzed using linguistic criteria based on the Grice maxims (9). There are four maxims that must be fulfilled in order to define a sentence or a text as adequate:

1. The sentence or text should contain the needed quantity of information, no more and no less.
2. The maxim of quantity, where one tries to be as informative as one possibly can and gives as much information as needed, and no more.
3. The information must be relevant.
4. The document should be concise, clear and organized, ambiguity should be avoided.

Detailed analysis of the inadequacies found in these sentences and a sample reply letter composed by a senior gastroenterolog is presented in the results and discussion sections. The sample reply letter was included in order to summarize the deficiencies found in the sentences and to enable discussion of structural issues.

Oxford dictionary online was used for clarifying unclear abbreviations, laboratory tests and expressions (10).

RESULTS

Out of the fifty sentences examined by the 24 PCPs, agreement of more than 50% regarding the grading was found in 42 sentences and ~40% in 5 sentences. The authors had to intervene and decide on the grade in only three sentences, due to equal distribution between two grading options.

Eight sentences were graded as understandable, 10 understandable but containing linguistic mistakes, 6 partly understandable, 12 partly understandable but containing linguistic mistakes and 14 sentences were graded as unclear. These results show that merely eighteen sentences (36%) were graded as understandable or understandable with linguistic mistakes. The rest of the sentences were not fully understandable.

We analyzed example sentences and the sample letter according to categories of the mistakes found in the sentences and the letter. The analysis was based on Grice maxims for analysis of texts which was described in the methods section. In several cases, more than one mistake was found in a single sentence.

Different types of inadequacies are detailed;

A. Lack of details. For example the sentence "Brought OCT Spectralis from 10.3.15 treated by treated by BE xalatane LE-cosopt- alphagan". OCT spectralis test is usually not recognized by PCPs, treated by was duplicated. "LE-cosopt alphagan" - most likely means that the patient used two types of drops for the left eye; the frequency of use is not mentioned in the sentence. The grade of the sentence was partially understandable but containing linguistic mistakes and it violated the first maxim of Grice.

   Another example is the sentence "We will inject, was not operated since she is afraid was not deferred by joints clinic". "We will inject" - It is not clear what injection and to what part of the body (probably a joint). "Was not operated since she was afraid"- what type of operation? "Was not deferred by joints clinic" - the sentence was written while she visited the joint clinic. The sentence was graded unclear and additionally it violates the fourth maxim of Grice.

   Additional example:" Iliofemoral abnormal 0.26 0.04 TBI with 0.07 LT 0.42". TBI is probably another abbreviation used for ankle-brachial pressure index (ABPI). TBI on the right side was 0.26 and on the left 0.42, meaning that the patient suffered from severe arterial disease of the legs. There is lack of details and ambiguous abbreviation. This sentence was graded as unclear and violates the first and the forth maxim of Grice.

B. Lack of relevance. "Renal function ALB 4.3 P 3.7 CA 10.3 K 4.3 Urea 108 CREAT 2.12" the correct sentence should be; Renal function - UREA 108 Creatinine 2.12. The rest of the sentence "ALB 4.3 P 3.7 CA 10.3 K 4.3" contains lab results which are not parameters of renal function and should not be included in a sentence that relates to renal function. This sentence was graded as understandable with linguistic mistakes and it violates the third maxim of Grice.

C. Ambiguous abbreviation. "Test UFC, ODXMT, Catecholamines and METAB". The meaning of UFC and ODXMT is unclear, and was not found when searching the oxford dictionary (10).

   "Gonio narrow angle BE with ITC>180 Ferototal cap BE" - Gonio means gonioscopy. "Gonio narrow angle BE" most likely means that narrow angles were found in both eyes on gonioscopy. ITC is an unclear abbreviation as is the expression Ferototal cap. These sentences were graded as understandable with linguistic mistakes and unclear respectively and they violate the fourth Grice maxim.

D. Connectives. The examples contained two types of errors regarding connectives; the first is improper use of connectives. An example is "and or" in the sentence "Mammography RT and or LT". This sentence was graded as unclear and violates the fourth Grice maxim.The second type of error is lack of connectives as can be observed in the following sentence "The patient is under observation due to osteoporosis, severe VITD deff.CRF HTN cataract MVI+AVI polycystic kidney GFR 36.5". There are several inadequacies in this sentence; lack of connectives between the parts of the sentence, the sentence's structure, use of ambiguous abbreviations and unnecessary details. Correct version of the first part of this sentence should be - The patient is under observation due to osteoporosis caused by severe vitamin D deficiency. The rest of the sentence ("CRF HTN cataract MVI+AVI polycystic kidney GFR 36.5") relates to background diseases and lacks connectives. In addition background diseases should be written as a problem list and as such should not contain abbreviations. Additionally the meaning of the abbreviations AVI and MVI is not clear. This sentence was graded as partially understandable but with linguistic mistakes and violates Grice maxims one and four.

An electronic letter from a specialist in gastroenterology to a PCP is presented. The letter exhibits several types of mistakes, including structural mistakes. "Name: John Smith ID: 1234567 age: 73.33 Date of birth: 19/9/1949 Father name: Jim Address: 99 Palm street, CA 777777 Phone: 0777777777 Date of visit: 31/11/2015

Visit reason: regular
Chief complaint: S.P CVA, IHD S/P PTCA, 70 years old. Background of HTN, Hypertrig diabetes medications: aspirin, cardoxin, enalaprin atenlol insulin simvastatin plavix. Allergies habits smoke in the family 00 was referred because of occult blood in the stools. Asymptomatic
Laboratory tests CBC chemistry normal. Examination normal recommendations: colonoscopy the risks were explained. Stop plavix ten days before the examination. continue aspirin according to the PCP. The examination can be performed with plavix but resection of large polyps
Diagnosis: fecal occult blood positive
Recommendation:"

The structure of an electronic letter includes; demographic details of the patient and the name of the physician, which appear automatically when the physician types the ID number of the patient. Several subheadings can be observed bellow the demographic details; date of visit, type of visit, chief complaint, past diagnoses, physical examination, discussion, recommendations and medications.

In the example above, the specialist ignores the subheadings and writes all the data in the chief complaint section. This letter is actually a mix of all the data. It starts with a partial list of past diagnoses followed by the patient's age and the rest of the background diagnoses. Incomplete sentences such as "but resection of large polyps" can be observed in the letter. Abbreviations are not written in a consistent manner, for example S.P CVA, S/P PTCA. Data is missing, as is seen in the sentence "Allergies habits smoke in the family 00". There is lack of connectives, many spelling mistakes were made and partial sentences can be observed. Additionally there are mistakes in the spelling of medication names and a mixture of both generic and commercial names is used. All four Grice maxims are violated in this letter.

DISCUSSION

The results of our study indicate that many sentences from specialists reply letters are unclear to PCPs. The fact that this lack of clarity is found in sentences relating to diagnostic evaluation and management of patients is worrisome since it can impair proper patient care. To the best of our knowledge our study is the first to analyze the linguistic mistakes which play an important role in the low clarity of some specialist's reply letters. Common problems encountered were lack of information, inclusion of irrelevant details, incorrect use of connectives and improper use of abbreviations. Interestingly, all the inadequacies mentioned are violations of Grice maxims for coherent writing which are commonly used and cited in humanities. We speculate that the issues regarding lack of information and inclusion of irrelevant details may improve significantly if specialists will adhere to the headings of the structured electronic reply letter. Composing letters according to the headings may improve the quality of the letters to some extent since the details will be presented more systematically and may also encourage using only the relevant details. Another factor which impairs the coherence of the reply letters is the use of ambiguous and unclear abbreviations. Studies on the use of abbreviations in discharge letters suggested that only common and accepted abbreviations should be used. This goal can be achieved by using a list of approved abbreviations or by adding approved abbreviations to the software used for writing computerized letters (11). An additional problem is the lack of connectives and tendency to write short, partial sentences, as used in e-mails, SMS messages and the social media. This phenomenon is common in current medical documentation (12). There is no easy way to overcome this issue, since young physicians are used to write this way. Adding a course in medical writing to medical school curriculum and emphasizing the importance of the issue during continued medical education can improve the way of writing to some extent (13). Another option is enabling the physician to electronically sign the letter only following completion of all the headlines, as is carried out in admission notes and discharge letters. Another measure which can be used to improve the quality of the specialist's reply letters is peer assessment, as has been demonstrated previously (14). Additionally, inclusion of specialist's letters in the assessment carried out during accreditation programs performed annually may help in improving their quality. During the accreditation process the quality of medical records such as admission notes and discharge letters is examined but referral and reply letters are not included in the process.

Implementation of at least some of the suggested measures is relatively simple and may lead to substantial improvement of the quality of specialist's reply letters with a subsequent better patient care.

CONCLUSION

Consultation letter writing is an essential skill for specialist physicians. The findings of our study are that less than half of the sentences extracted from specialist reply letters were understandable and only 16% of the sentences from this letters were graded as understandable without linguistic mistakes. The quality of the specialist's reply letters must be improved in order to ensure optimal patient care. We suggest several measures that may be taken in order achieve this goal.

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