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Maura Ratia and Carla Suhr

# Interpreting the world of late modern English medical writing

From “I examined” to “ratios were obtained”

**Abstract:** In this chapter we study the use of first- and second-person pronouns and passive constructions (BE + PP) in medical and scientific journal articles in a long diachrony. In the analysis, three corpora were used: *The Corpus of Early Modern English Medical Texts*, *The Corpus of Late Modern English Medical Texts* and the *Medicor* corpus. We set out to explore whether the shift from the author-centred writing of the early modern period to the present-day impersonal style originated in the eighteenth century. Our quantitative study shows that early specialized medical journal articles did not spearhead the change towards more impersonal writing: the frequency of first- and second-person pronouns remained high and the use of passives increased only slightly in the eighteenth century. The qualitative analysis indicates that discourse forms such as the letter and narratives favour first- and second-person pronouns, and the absence of these discourse forms in present-day medical research articles at least partly explains their decline.

**Keywords:** Author-centred style, impersonal style, first- and second-person pronouns, passive constructions, medical journal articles

## 1 Introduction

In the history of English, the register of medical writing has been established as the spearhead in changing scientific thought-styles (see e.g. Taavitsainen & Pahta 1995). Research into this register has shown a shift from logocentric, authority-driven discourse in the late Middle Ages to a more empirically motivated discourse in the early modern period that elevates personal experience over classical authorities (Pahta & Taavitsainen 2011). However, medical writing between 1700 and the late 20<sup>th</sup> century has only recently begun to be studied in depth,

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mainly because of a lack of corpus material suitable for linguistic study. This chapter begins to tackle the gap by focusing on medical writing in the eighteenth century – the century that saw, for example, the first academic journals dedicated to medicine.

The emphasis on empirical, strictly controlled experiments as sources of medical knowledge developed in the early modern period. This practice continues today, but the style of writing has changed: present-day medical writing is mostly abstract and impersonal, and first-person pronouns are rare (Vihla 1999), although recent studies have observed a rapid decrease in the use of the passive voice in British and American scientific English (see e.g. Seoane 2011 and Leong 2014). This chapter is a diachronic investigation of the use of first- and second-person pronouns and passive constructions (BE + PP) in medical articles found in three medical corpora that cover both historical and modern journal articles. We aim to find out whether the shift towards more impersonal style began already in the eighteenth century with a quantitative analysis of relative frequencies of these features in the different periods. In addition, we investigate if variation in the functions and contexts of first- and second-person pronouns and passives can explain any developments we find.

## 2 Background

The move from a personal style of writing in medical journals to the present-day matter-of-fact and more detached style has been gradual.<sup>1</sup> We already have an understanding of some of the reasons behind the use of a personal style in the early modern period. The style of writing employed by experimentalists of the time, such as Boyle and Newton, called a *rhetoric of immediate experience* by Atkinson (1992: 339), was manifested by the use of first-person pronouns, past-tense and active-voice verbs used to describe experiments or observations in the narrative form. These frequently occurring case narratives have also been called case studies, reports, histories or testimonies, and they were essential components in early modern scientific writing (Taavitsainen 2011: 93, see Gross et al. 2002). In structure, they followed Labov & Waletzky's model of natural narratives (1967),<sup>2</sup> but as the purpose was to present evidence in order to argue a certain

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<sup>1</sup> For studies on the development of an objective style of writing in news discourse, see Stenvall (2017: 119-220).

<sup>2</sup> Taavitsainen & Lehto (2019) estimate that this trend also applies to Late Modern English case narratives.

viewpoint or to persuade an audience, the narrative function is “non-primary” (Dorgeloh 2005: 87, Virtanen 1992: 305).

A scientific activity based upon experimentation can be summarized as a *human – acting on – nature* (Atkinson 1996: 360). At first these experiences were personal and subjective, but they gradually became something titled *experiments*, which suggests a more objective setting with verifiable parameters (Dorgeloh 2005: 86). When the actual experience was described, active verbs were preferred, but the passive voice could be utilized to explain the setting-up of an experiment (Dear 1985: 153). Therefore, the choices behind the use of active/passive constructions explain what was emphasized in the reporting of scientific experiments: the set-up of a procedure with passive forms or the physician as an active doer with first-person pronouns describing the procedure, which underlined the authority and skills of the physician. Atkinson (2001: 47; 1999) characterized the early *Philosophical Transactions* (PT) as “author-centred” (vs. “object-centred”) indicated by first person pronouns, active verbs and references to the author’s emotions and psychological processes. In addition, PT articles contained other features contributing to author-centred style: *witnessing*, i.e. referring to other important people present, *indexes of modesty and humility*, a *tendency toward miscellaneity* and *elaborate politeness*. According to Atkinson (2001: 48), the author-centred style continued in PT with only minor fluctuations throughout the 1700s and even up until 1875.

In contrast to the early modern period, only few studies have been conducted concentrating on Late Modern English scientific or medical texts. In a study investigating impersonal style in Late Modern English scientific writing (Monaco 2016), agentless passives were found to be the most frequent linguistic features to convey impersonal style. Variation and change across genres was detected, and the Philosophy and Life Sciences texts analysed in the study proved to be more impersonal than the material from the *Philosophical Transactions*; nevertheless, a consistent pattern of genres becoming more abstract emerged (Monaco 2016: 521). In Seoane’s study (2008: 294-295, 299-300), scientific texts were found to contain many passives – over 50% of transitive clauses – and to resemble informal texts in having low frequencies of long by-passives (represented by Drama and Letters categories from ARCHER corpus). Seoane hypothesizes that in Late Modern English the use of passives had become conventionalized with a stylistic rather than functional purpose. Gross et al. (2002: 76-80) observed a general trend from subjective to objective style in eighteenth-century scientific prose manifested by the rise of short passives and the decrease in personal pronouns. Hedges and citations also grew in number, which highlights a new emphasis on

the research network instead of the scientist. Diachronic changes within the century were, however, found to be rather small. All of these studies dealt with the wider register of scientific writing. As medical texts have been argued to lead the development in science, we set out to examine whether medical writing, especially specialized medical journals such as the *Edinburgh Medical Journal*, would lead the changes in discourse as well.

Present-day medical research articles have received more scholarly attention. The passive is employed, according to Nwogu (1997: 129-131), to indicate source of data (“samples ... were obtained”), to identify research apparatus or to recount experimental process (“... was used/measured”) and with reference to visuals (“... are shown”). This emphasizes the subject matter at the expense of the actor, who is not that important in academic writing, making the discourse more objective and detached (Biber et al. 2002: 168). In Biber’s multidimensional analysis of spoken and written registers, agentless passives and *by*-passives were among the features included in the study marking “informational discourse that is abstract, technical, and formal” (1988: 112-113).

In contemporary medical discourse, an alternative strategy can also be used to signify impersonalization, namely metonymy (see Rundblad 2007). In her analysis of nine methods sections of medical journal articles, Rundblad found that authors were either completely visible through the use of the first person plural *we* and active voice, or almost completely hidden by metonymy or passive voice (2007: 272-273). This signals an interesting balance of both distanced and authorial discourse.

The structure of present-day scientific articles is very conventionalized and follows a set pattern of Introduction-Method-Results-Discussion (see Swales 1990). Popular articles on medicine, however, have a structure similar to newspaper articles, such as starting with a lead and having all the essential information at the beginning, since popular journals need to compete for their readers (Nwogu 1991: 120-121).

### 3 Materials and methods

In order to assess the development of an impersonal style in medical writing from Early Modern English onwards, three corpora were used. *The Corpus of Early Modern English Medical Texts*, EMENT (Taavitsainen et al. 2010), covering the period from 1500 to 1700, represents different genres of medical writing with c. 2 million words. *The Corpus of Late Modern English Medical Texts* or LMEMT (Taavitsainen et al. 2019), is of similar size, c. 2.2 million words, and contains medical

texts from 1700 to 1800. The third corpus, the *Medicor* corpus (Vihla 1999) comprising texts from the 1980s and 1990s with a total size of c. 393,000 words, was included to enable comparisons to present-day English.

To facilitate comparisons between the corpora, we chose to examine medical journals, which, as a genre, can be said to have evolved greatly from its early years to the present-day. EMEMT has a separate category dedicated to the *Philosophical Transactions* from 1666 to 1700. The journal was closely connected to the Royal Society of London, initially “a fairly large, loose-knit group of amateurs and ‘natural philosophers’ in and around London” (Gross et al. 2002: 32), with, nevertheless, many of its members practicing medicine (Hall 1971: 112, Porter 1989: 272). Originally, many of the articles were letters addressed to the *Royal Society*, sometimes with editorial involvement and introductory comments (Hiltunen 2010: 128). In addition to experimental reports that, in fact, only made up a small portion of all articles, descriptions of natural phenomena and geographical locations, accounts of anatomical dissections and curious observations were included. Book reviews were also common giving the readers access to medical publications (ibid.). The early *Philosophical Transactions* also published articles by men outside the *Royal Society*, e.g. letters to the editor from seafarers and world travellers (Gross et al. 2002: 67).

During the late modern period, the scientific article grew in importance, while the book still remained as the main vehicle for disseminating scientific knowledge (Taavitsainen et al. 2014: 145-146). This idea is supported by the number of book reviews in the journals of the time. In LMEMT, medical journals are gathered from three sources. The *Philosophical Transactions* of the eighteenth century have been divided into two groups, 1700-1749 and 1751-1800,<sup>3</sup> to make it easier to compare the results to the two other eighteenth-century journals, *Edinburgh Medical Journal* (EMJ) and *Gentleman’s Magazine* (GM), both of which appeared primarily only in the second half of the century. In the eighteenth century, the *Philosophical Transactions* had already become more established and the presentation of experiments more systematic and theoretical (Atkinson 1992: 340). The *Edinburgh Medical Journal* represented a new and more learned medical periodical consisting of transactions of medical societies (Lefanu 1938, Kronick 1976: 336). The contents varied from book reviews to case narratives, often in letter format, including salutations and references to the reader with the pronoun *you*. At times, the case studies were compiled into a collection of independent narratives (Atkinson 1992: 348-350, Hiltunen 2019). In comparison, *The Gentleman’s Magazine* was a popular journal of the enlightened gentleman reader. In

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<sup>3</sup> The corpus does not have any text samples from the year 1750.

Georgian medicine, professional and lay medicine still overlapped and interacted with each other and, accordingly, the *Gentleman's Magazine* contained numerous articles with medical topics. Letters from readers, case histories, medical news articles, advice and remedies, lists of medical books and reviews, etc. were often reprinted from other sources (Porter 1985: 141-143, 163-164).

In the *Medicor* corpus, the material is divided into genres based on the intended audience: professional or popular (Vihla 1999: 38). Of the category of professional texts, we chose to include research articles (abbreviated as “ra”, c. 112,000 words) and of popular texts, popular articles (abbreviated as “pa”, c. 80,000 words), but excluded editorials, textbook, handbook and guidebook samples. All journal articles are from the year 1997.

Tab. 1: Corpora

Corpus	EMEMT		LMEMT			Medicor	
Sample	Cat. 6		Cat. 6, Periodicals			Research articles	Popular articles
	PT	PT	PT	EMJ	GM		
Coverage	1666-1700	<b>1700-1749</b>	<b>1750-1800</b>	<b>1747-1796</b>	<b>1731-1798</b>	1997	1997
Word count	186,000	<b>148,000</b>	<b>86,000</b>	<b>127,000</b>	<b>147,000</b>	112,000	80,000
TOTAL	186,000		<b>504,000</b>			192,000	

The methodology of the study consists of corpus searches with *AntConc* (Anthony 2014) on the specific categories of the corpora (see Table 1 above) that had been POS-tagged with *TagAnt* (Anthony 2015). The features under scrutiny include first- and second-person pronouns, in all their forms,<sup>4</sup> and passive constructions, namely be + past participle. We did not consider it necessary to distinguish whether the passives were agentless or not, that is, short or long, although this

<sup>4</sup> We searched for subject, object and possessive forms, including possessive determiners, as well as reflexive forms.

division is maintained in some studies.<sup>5</sup> After quantitative analysis of the pronouns and passives, individual instances were analysed qualitatively in their context.

As we were interested in the big picture in the use of the passive voice and first- and second-person pronouns, we have compared whole categories instead of single texts in our quantitative analysis. This choice was also influenced by the composition of the corpora we use: individual articles are available as separate text files only for EMENT, so getting comparable results for all three corpora would have required a lot of additional work. Quantitative analysis of the articles in EMENT showed that some text-internal variation is common, but the results calculated on the basis of the articles are close to the results for the category as a whole. This is why we decided that working with whole categories instead of individual texts is sufficient for our purposes. This means that statistical analyses of significance are not possible for this study, which means that we need to be careful when interpreting our results.

## 4 Results

In this section we present the results of our analysis of the use of passives and first- and second-person pronouns in medical writing in journals aimed for professional and lay audiences. We start with the quantitative results to identify patterns in the frequencies of usage and then move to the qualitative analysis of the contexts of use of these constructions.

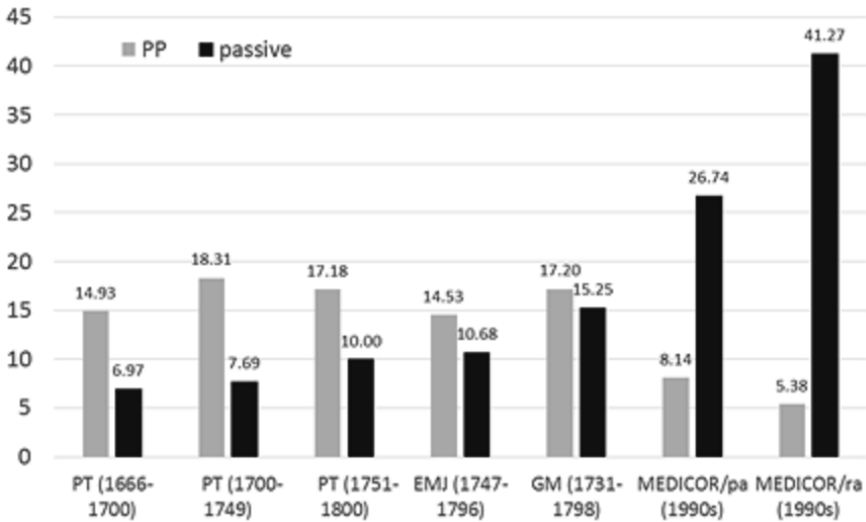
### 4.1 Quantitative results

We begin by looking at the overall relative frequencies of both first- and second-person pronouns and passives in the various corpora (see Figure 1).

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<sup>5</sup> For instance, Seoane (2008: 294-295) found out that the function of subject backgrounding is more common in short passives whereas object foregrounding occurs more in long passives. Formal text types are generally associated with long passives and informal text types with short passives.





**Fig. 1:** The distributions of first- and second-person pronouns (PP) and passives per 1000 words in the corpora

As expected, the most impersonal texts are the modern medical research articles (*Medicor/ra*), which have the highest frequency of passives as well as the lowest frequency of personal pronouns out of all the text categories. The modern popular articles (*Medicor/pa*) show a similar trend, with the second-highest frequency of passives and second-lowest frequency of personal pronouns. The difference in the frequency of passives in the professional and popular articles is big, pointing to the stylistic differences of the two types of writing. As popular articles on medical topics are often second-hand reports, third-person constructions in the active voice likely account for the lower frequency of passives and relatively low frequency of first- and second-person pronouns. In both text categories, however, passives are much more frequent than first- and second-person pronouns, indicating a more impersonal style of writing when compared to the historical texts.

Conversely, in the historical material, personal pronouns are used consistently more often than passives in all the text categories. Personal pronouns are also used more frequently in the historical material than in the modern material. However, passives are not infrequent in the historical material, so that the differences in the ratios of pronouns and passives are not as extreme in the historical

material as they are in the modern material.<sup>6</sup> One explanation for this may be that third-person constructions in the active voice are used alongside first- and second-person constructions and passives. The overall results for the historical material nonetheless indicate that the early journals are more involved than the modern medical articles, but that they also contain a certain degree of impersonality.

Interestingly, the frequencies for personal pronouns fluctuate between 14.53 and 18.31 instances per 1000 words in the historical period and show no clear change over time. Thus a shift towards the present-day pattern is not present. However, a slight increase in the use of passives can be observed, though it should be noted that this chronological increase in the frequencies of passives is for the most part so small that it could simply reflect normal variation. The one category that stands out is GM – the journal with a popular rather than a professional audience – that has the highest frequency of passives with 15.25 passives per 1000 words, when the other two late-eighteenth-century journals hover around 10 passives per 1000 words. One reason for the abundant amount of passives in GM may be due to passive-rich discourse forms unique to GM such as medical news articles, as in Example (1):

- (1) [}CASUALTIES. }] 4. On the Road betwixt Bath and Bristol, the Body of a Man **was found**, with all his Limbs cut off and mangled, and the Skin stript off his Face, supposed **to be done** to prevent his **being known**.  
(1731\_GM\_0451; emphasis in bold added here and in all subsequent examples)

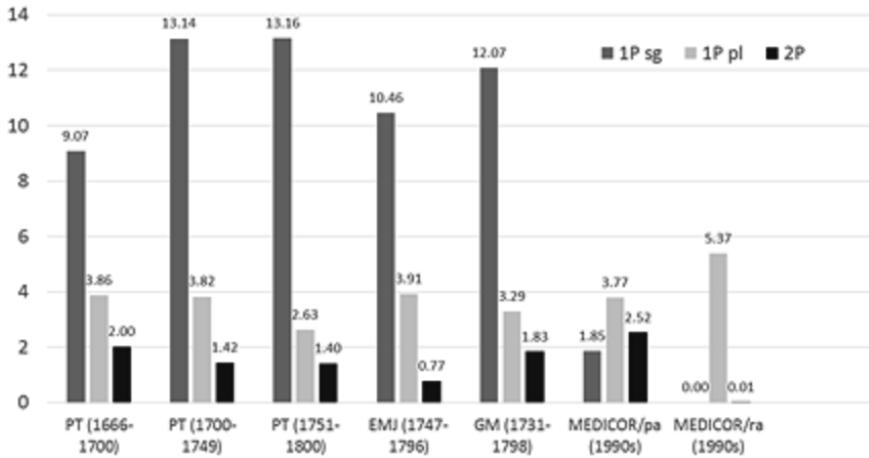
Note that example (1) is the fourth item in a list of news reported under the heading “Casualties”. This particular list contained more than two dozen items (not all of which related to medicine), which points to the prevalence of this discourse type in GM. Nonetheless, a more general tendency to increasingly use passives in journal articles reporting on medical topics probably also contributes to the higher overall frequency of passives in GM over PT and EMJ.

The quantitative data, then, suggests that the shift towards a more impersonal style of writing that favours passives at the expense of first- and second-person pronouns was starting very gradually in the second half of the eighteenth century. What is noteworthy is that the rise in the use of passives did not co-occur with a decrease in the use of personal pronouns. However, evidence from the

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<sup>6</sup> A study on nineteenth-century trials revealed a similar trend of a high frequency of first-person pronouns co-occurring with passive constructions (Kytö & Romaine 2006).

nineteenth century is needed to verify that the gradual increase noted here continues.



**Fig. 2:** The distributions of first- and second-person pronouns per 1000 words across the corpora

A closer look at the distribution of first- and second-person pronouns indeed reveals some interesting patterns (see Figure 2). First-person singular pronouns dominate in the seventeenth- and eighteenth-century journals, but they are completely absent in modern research articles (*Medicor/ra*) and rare in modern popular articles (*Medicor/pa*). The distributions of first-person plural pronouns and second-person pronouns, however, are not all that different across the various corpora. The exception is modern research articles (*Medicor/ra*), as its articles use almost exclusively first-person plural pronouns, when texts in the other categories use both singular and plural first-person pronouns as well as second-person pronouns.

It seems, then, that the more frequent use of specifically singular first-person pronouns along with less frequent use of passives is what sets the historical medical journal texts apart from their modern counterparts. To understand the reasons for these changes, in the next section we look more closely at the contexts and functions of first- and second-person pronouns and passives.

## 4.2 Qualitative analysis

The most common discourse form found in PT is the letter (see Atkinson 1999: 81, 2001: 49). It is also frequently used in EMJ and GM (Atkinson 1992: 348, Taavitsainen 2019). Often the letters sent to the editors were printed complete with their salutations, openings and closings, which are rich in first- and second-person pronouns. Example (2) comes from the beginning of one such letter, and it shows the clustering of first- and second-person pronouns that is characteristic of letters.

- (2) SIR, I hope **you** will Pardon the Trouble of this, because it will in a great measure satisfie **you** about that Distemper **my** [sic] upon Tongue, for which **I** have so lately had **your** Advice: The Observation is very curious...  
(1694\_pt18\_219-21)

First- and second-person pronouns are used in a conventional manner to indicate politeness by apologizing for taking up the editor's time, and also to express the justification for writing the letter: to report on the outcome of medical advice received earlier. The elaborate politeness of letter openings in PT, taking the form of praising the addressee and humbling the author, has been noted by Atkinson (1999, 2002), who ties it in with the author-centred approach characteristic of PT in the seventeenth and eighteenth centuries. We find this to apply also to letters in GM. As letters are not found in the present-day material, the politeness function of first- and second-person pronouns is restricted to the historical medical articles.

The letter format alone does not account for the very high frequency of first-person singular pronouns found in the historical articles, however (see Figure 2). One explanation for this prevalence is the common practice of formulating reports about research, case studies and various kinds of medical observations or experiments as narratives. This can be seen in Example (3), which comes from the beginning of a Dr Willis's description of his treatment of a case of tetanus:

- (3) A New negro wench of Mr John Dunn's, who had been washing clothes at the river, came home to all appearance perfectly well; she slept in a warm chamber. In the morning, she had not risen so early as usual; her mistress went to her room; found her with a tetanus; her jaws strongly locked; spasms very rigid of the cervical muscles. Upon inquiry **I** found, that about eighteen days previous to that time, she had a ragged piece of pine wood run into her foot, which was extracted with some difficulty. As **I**

never had one patient out a great number that ever did recover, when the locked jaw came on, either from lacerated wounds, or puncture in the foot, **I** gave not the least hopes.

**I** examined the [punctured] part; it appeared dry. **I** cut down the skin; and the puncture that had been made was very perceptible; but no matter, or any thing extraneous, could be discovered. **I** ordered her mouth to be tried to get it open, to administer something, but without effect. **I** immediately applied a caustic to the puncture; put her into a warm bath, keeping out the wounded foot where the caustic was; then wrapped her in a blanket.

(1795\_emj3\_v19)

Dr. Willis's account is a prototypical example of the author-centred report of a medical procedure that is commonly found in all of the historical medical articles, throughout the seventeenth and eighteenth centuries. The account begins by describing the setting and then proceeds to enumerate the actions taken before evaluating the end result (not included in the example). Second-hand reports are also quite common in the material, and they, too, are often formulated as loose narratives, as in Example (4) below:

- (4) **I** Visited ... a Gentleman of about forty five Years of Age ... who had a hard Tumor ... Various internal Medicines, and external Applications **were made use of** to no Purpose; but the following Method removed this Disorder. The common Caustick ... **was applied** ... At each Dressing this alternate Application of these opposite Causticks **was repeated**, till as much **was wasted** as was then thought convenient; the Moisture **was absorbed** by an armed Probe, and a Digestive **applied**. By these Means the Tumor **was** gradually **wasted** every Day, without any continuing Pain or succeeding Inflammation ... **I** have often known it successful in obstinate venereal and scrophulous Disorders. Mr Moore, a Surgeon in the Army, to whom **I** communicated it some Years ago, assures **me** it never fails him in obstinate Gonorrhœas...

(1747\_emj1\_v4)

Interestingly, these second-hand reports use the passive voice rather than active third-person constructions, effectively erasing the original performer or observer and focusing attention on the procedures or descriptions of phenomena. However, the author of the report does not absent himself from the account com-

pletely, but inserts himself in the narrative as interested observer with some personal link to the patient and the procedure that gives his observations and recommendations reliability and authority. This also allows him to comment on the validity of the procedure.

In addition to second-hand narratives, the passive voice was also used in book reviews, which were common in all types of historical journals. The number of book reviews in GM increased in the eighteenth century and their form became more standardized (Taavitsainen 2019), which may contribute to the slight rise in the use of passives observed in the qualitative analysis. However, reviewers also inserted themselves into the texts with authorial comments, as they do in second-hand reports of medical procedures. Some book reviews also contain an interesting third-person construction in the active voice with “our author(s)” as the subject, which manages to bring in an aspect of familiarity to an otherwise impersonal report.<sup>7</sup>

The authorial comments accompanying reports and book reviews also seem to cluster in the beginnings and ends of the accounts, as they do in letters. First-person comments opening an account may, for example, indicate a lack or problem that the ensuing narrative will address, as in Example (5):

- (5) WHEN **I** consider the frequent failure of other means in this too fatal disorder, and the almost total neglect of so rational an operation, it is to **me**, **I** confess, a matter of surprize and concern. It is true, the ill success which has sometimes attended it has led some of our English chirurgical writers into enquiries after new methods, but then these **were proposed** to take place in due time, before the impending necessity of the operation, as the last resource ...

(1755\_GM\_0204)

Comments ending a narrative, on the other hand, commonly include testimonies, as in Example (4), but they could also consist of suggestions of expected outcomes, as in Example (6):

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<sup>7</sup> Altogether there are only 170 instances of third-person constructions with “our author(s)” in the corpora, so this is not a common feature at all, and we have therefore not deleted these instances of possessive first-person determiners from our overall results in Figures 1 and 2. The feature seems to be a matter of personal style, as it tends to cluster in some articles and does not appear at all in most of them. Almost half (88) of the instances appear in EMJ, and another 50 occur in the seventeenth-century PT.

- (6) If this unwholsome Weed is not in some Degree prohibited by the Govern-ment, **I** can expect Nothing less, in one Generation more, but that **we** must hire Foreigners, as they do in Spain, to do **our** hard Labour; and for the Defence of the Nation. **I** leave any one to judge what Soldiers **we** are like to have.

(1737\_GM\_0213)

The first-person plural pronouns in this example refer to the nation as a collec-tive, but usually first-person plural pronouns are used to refer to a single author, as in Example (7), where the first-person plural *we* is in fact the editor of the jour-nal:

- (7) In compliance with our kind correspondent's hint, **we** have extracted from Dr Pinard's curious letter all that relates to the cause, description, and cure of this distemper; but **we** must refer our medical readers to the original for his judicious reflections and reasoning upon so interesting a subject.

(1755\_GM\_0462)

In modern research articles, we noted that first-person pronouns are exclusively found in the plural form. This most likely reflects the plurality of authors of single articles, as attribution of authorship to whole research groups is common prac-tice. However, the location and function of these first-person plural pronouns are quite similar to the pronouns in earlier medical articles, as they are often found in conclusions, where the authors summarize and evaluate their findings, and to a lesser extent in other sections. The difference is in the quantities rather than the functions of the pronouns. The methods and results sections, which could be thought to loosely correspond to the narrative accounts of observations found in early medical articles, usually make use of passives over personal pronouns, as in Example (8):

- (8) Parental perception that regurgitation was a problem **was associated** with the frequency and volume of regurgitation, increased crying or fuss-iness, reported discomfort with spitting up, and frequent back arching. Adjusted odds ratios of these significant factors **were obtained** by multi-ple logistic regression analysis (Table 2).

(Medicor/RA: qra\_nels)

The passive usage de-emphasizes the authors and places more importance on the experiments and the results. The tendency in the earlier medical articles is to report experiments conducted by the author himself in the first person and describe experiments by other people using the passive voice. This distinction is no longer found in the modern material, where second-hand reports are not included.

Modern popular articles exhibit very different functions for first- and second-person pronouns than the other text categories. First-person pronouns are most commonly used in direct quotes, as in Example (9):

- (9) “Being diagnosed with ADD gave **me my** life back,” she said. “**I** still have trouble planning, but **I**’m making much more progress than **I** had before **I** knew what was wrong.” Once diagnosed primarily in school-age children, attention deficit disorder - clinically defined as attention-deficit hyperactivity disorder - **is** now **being diagnosed** in a record number of adults.

(Medicor/PA: gpa\_mor)

The referent of the first-person pronoun is not the author of the article, but someone who has been interviewed by the author. Quotes from ordinary people are one way of construing news values by personalizing the news (Bednarek & Caple 2012: 53). The example also shows how medical research is referred to using the passive, but the article about the research is made personal and more dialogic by including testimonials as direct speech. This kind of division of roles is not evident in the historical material or the modern research articles.

Second-person pronouns are also found in direct quotes, but they are not used to address the reader. Instead, they are used in a passive sense, as in Example (10):

- (10) ... said Dr. Murray Lumpkin, deputy director of the FDA’s Center for Drug Evaluation and Research. “The issue now is how can **you** manage the downsides of this drug? That is the challenge.”

(Medicor/PA: qpi\_sto)

This kind of replacement of the regular passive construction is also unique to the popular medical articles.



## 5 Discussion

Our quantitative results fall in line with earlier observations about scientific and medical journal articles. Modern medical articles clearly favour passive constructions and make sparing use of first- and second-person pronouns. The historical medical articles are more author-centred, demonstrated by their preference especially for first-person singular pronouns, but the distributions of personal pronouns and passives are not as divergent as they are in modern articles. The frequencies of first- and second person pronouns did not change in the eighteenth century in comparison to the seventeenth century, which goes against the findings of Gross et al. (2002). However, as they admit that the diachronic changes they found are very small, their results may simply reflect the variation we noted in our study. We did detect a very gradual increase in the use of passives in the second half of the eighteenth century, as Gross et al. (2002) did, but more research is needed to corroborate this trend.

Throughout the eighteenth century, there is still considerable overlap between popular and professional journals. The only specialized medical journal, EMJ, had similar results as the more generalist scientific journal PT and the more popularly-oriented GM, and can therefore not be claimed to be spearheading this observed shift towards more impersonal style. In addition, it seems that the specialization of EMJ is not evident in its linguistic structures, at least when it comes to the use of personal pronouns and passives; whether the specialization in topic can be seen in features such as terminology remains for future research to find out.

Examining the contexts and functions of both first- and second-person pronouns and passives shows remarkable uniformity for the historical articles and uniqueness for the two modern text categories. The most common discourse forms found in the historical material, letters and narratives, inserted authors in the texts by retaining opening and closing formulae and politeness conventions, leading to clustering of pronouns in the beginnings and ends of articles. Letters and narratives also enable first-person accounts and copious authorial commentary. The author-centeredness noted by Atkinson (1999, 2001) is very clear throughout our material, thus corroborating his observation of the continuation of this trend in the eighteenth century. However, narratives in the passive voice are also found throughout the historical material, though it seems to be the preferred form for second-hand reports rather than first-hand reports. Perhaps here lie the origins of the modern-day preference for passive voice and object-centeredness when reporting on experiments.

The absence of letters and narratives in modern medical articles is a likely reason for the lower frequencies of first- and second-person pronouns in the modern material. The choice of first-person pronouns in research articles is a direct result of the practice of collaborative authoring. The IMRD-structure of present-day research articles allows for some authorial commentary especially in the concluding sections and occasionally in the methods and results sections, as well; these sections could be considered to translate very loosely to the earlier narratives. Interestingly, a return to author-centeredness may be taking place, as recent research suggests that the use of passive voice is decreasing in scientific research articles (see e.g. Seoane 2008, Leong 2014). Some scholars even argue that writing instructions for research articles should discourage authors from using passives instead of personal pronouns (Amdur et al. 2010 and Nwogu 1991). Popular medical articles show affinity to news writing, with first- and second-person pronouns mostly used in direct quotes to increase the personal touch that draws reader; previous research has also shown the structure of popular medical articles to resemble that of news articles (Nwogu 1997).

## 6 Conclusion

In this chapter we set out to investigate the origins of the shift from author-centred to object-centred or impersonal scientific journal articles. Our focus was on the eighteenth century, when the first specialized medical journals – represented by EMJ – were founded to coexist with more generalist scientific journals like PT and popularly-oriented journals such as GM. Our quantitative study shows only a very gradual increase of the use of passives in the eighteenth-century medical journal articles, and no change in the frequency of first- and second-person pronouns. It seems that the shift was slow, but further research into the following two centuries will show if the rate of change becomes faster. Our study indicates that specialized medical journal articles did not spearhead the change towards more impersonal writing in the seventeenth and eighteenth centuries. However, expanding the range of future studies to the nineteenth century may show a different picture; after all, journals like EMJ were still very new in the eighteenth century and conventions for new genres take time to form.

The qualitative analysis showed that discourse forms of texts and the functions of features chosen for investigation are important factors that need to be considered in any analysis of change over time. Discourse forms such as the letter favour first- and second-person pronouns, as do narratives; they also seem to en-

gender clustering of these features in the beginnings and ends of texts. The absence of these discourse forms in present-day medical research articles explain, at least to some degree, why these features are no longer as numerous as they were in the seventeenth and eighteenth centuries. At the same time, simply relying on numbers would not reveal the fact that first- and second-person pronouns exhibit unique functions in modern popular medical articles.

Assessing diachronic changes in writing styles of any kind is always a complex endeavour that is best served by combining qualitative and quantitative analyses. It is possible to do this for scientific writing of the eighteenth and nineteenth centuries, as comparable material is available in the form of carefully constructed corpora (see Monaco 2016) while medical writing will be covered until the eighteenth century (see Taavitsainen et al. 2010, 2019). Recent developments in digitizing historical texts also provide material for research into medical and scientific discourses of the past and the present. This study has focused on only one aspect of historical medical writing, but it has raised new questions that are worth investigating, and there is ample material waiting for further study.

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