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Oralizations in e-mail consultations: A study of general practitioners’ use of non-verbal cues in written doctor-patient communication

Abstract
It is well-known that non-verbal cues are essential in doctor-patient communication. As doctor-patient communication is turning increasingly digital and written, it becomes relevant to explore the role of non-verbal cues in such communication genres. One more recent genre is the doctor-patient e-mail consultation. Research has found that while patients like e-mail consultations, they also miss facial expressions, eye contact, etc. In this study, we explored the different ways in which Danish GPs use non-verbal cues in e-mail consultations. We analysed 633 e-mail consultations written by 22 GPs. We applied the concept of oralization, which includes the use of emoticons and non-standard use of grammar and spatial arrangement. We found that the dominant types of oralizations were non-corrected spelling errors and lack of attention to capitalization. Overall, GPs used a limited number of other non-verbal cues. We discuss how these findings relate to norms of formality and professional context.

Keywords: e-mail consultation, general practice, doctor-patient communication, non-verbal cues, oralization, written communication

Introduction
Non-verbal communication is often described as a cornerstone in health communication and as a key skill for healthcare professionals. Studies on oral doctor-patient communication have found that non-verbal communication is important for the expression of empathy by healthcare professionals, which in turn helps patients deal with their emotions (Shim et al. 2016). Furthermore, non-verbal communication has been associated with treatment adherence (He et al. 2018) and positive health outcomes (Hannawa 2012, Miller 2002). Others have identified patient satisfaction as associated with non-verbal aspects of communication such as close proximity and eye contact between patient and doctor (Brown et al. 2002, Griffith et al. 2003, Miller 2002). Overall, Hannawa found that non-verbal communication ‘impact[s] patient trust, closeness, empathy, forgiveness, avoidance, distress, and satisfaction’ (Hannawa 2012: 8). Thus, non-verbal communication, it seems, is central for relationship-building and effective communication in healthcare.

A key feature of the transforming role of communication in healthcare is that in recent years, doctor-patient communication has moved into the digital realm. More recent digital technologies have made it possible for patients to communicate with their doctors via various oral and written telemedical media. One written and digital health communication technology is the e-mail consultation (also sometimes referred to as “e-consultation”). E-mail consultations are online, written consultations that allow doctors, often general practitioners (GPs), and patients to communicate asynchronously without requiring their physical and/or temporal co-presence (Andreassen 2011, Ye et al. 2010). The e-mail consultation is a fairly recent medium in doctor-patient communication; thus, research in the area is still limited compared to more traditional communication forms such as the oral encounter (Voruganti et al. 2018). Of the studies that have been conducted, many have focused on doctors’ and patients’ perspectives on using e-mail communication. These have shown that doctors generally see fewer benefits than patients, that even
though e-mail is commonly used for patient care, it is poorly documented, and that rules for e-mail exchanges are rarely discussed by the users. Most of these studies are based on interview studies or surveys (e.g. Banks et al. 2018, Cook et al. 2016, Dash et al. 2016, Fage-Butler and Nisbeth Jensen 2015, Hassol et al. 2004, Hsiao et al. 2011). More rarely, the actual e-mail is made the object of study, and here analyses have focused on the complexity of the e-mail content (Møller et al. 2021) or on grouping e-mail content into categories such as ‘non-acute issues’ (Anand et al. 2005), ‘medical updates’, ‘requests for action’ (Mirsky et al. 2016), ‘clinical content’ and ‘administrative content’ (Atherton et al. 2020).

While other studies have looked at the content of e-mail consultations, to our knowledge, no studies have specifically investigated the use of non-verbal cues in doctor-patient e-mail consultations. We saw above how important non-verbal cues are for doctor-patient communication; however, previous studies of e-mail have found that such mediated doctor-patient communication can lead to patients missing human contact including facial expressions, eye contact and body language (Fage-Butler and Nisbeth Jensen 2015). What happens with traditional components of non-verbal communication such as facial expressions, eye contact, vocal intonation and gesturing when doctor-patient communication becomes written and digital? To explore this, we find inspiration in the concept oralization, which will be described below, and ask the following research question:

Do GPs use oralizations when writing e-mail consultations to their patients, and if so, in what way?

Non-verbal cues in computer-mediated communication

Early studies on computer-mediated communication argued that non-verbal communication cues were absent in computer-mediated communication (Walther 2002), such as the cues-filtered-out approaches (Culnan and Markus 1987); others have argued that many of the non-verbal cues known from face-to-face communication are absent in computer-mediated communication (Riordan and Kreuz 2010). Another stream of research argues that such cues do exist, but they take other forms, such as italics, bold, exclamation points (Fox 2007), capitalisation, emoticons (Byron and Baldridge 2005, Fox 2007) and repeating letters and punctuation marks (Kalman and Gergle 2014). Walther (2006) explored how specifically emoticons functioned as non-verbal cues to emotion and facial expressions in computer-mediated communication.

Specifically regarding e-mail communication, the norms that affect how people communicate are not static, and expectations about formality are ambiguous (Axtell et al. 2019). In a professional context, previous research has suggested that online therapists for instance could use emoticons to communicate feelings (Pollock 2006). However, while the perceived absence of non-verbal cues has previously been found to be a concern for professional e-mail use in mental health therapy, other researchers have suggested that a lack of non-verbal cues does not necessarily negatively affect the therapeutic relationship between patients and therapists (Sucala et al. 2012).

Uncertainty concerning communication style has also previously been found amongst GPs and patients communicating through e-mail consultations (Atherton et al. 2013). Recently, e-mail consultations have been found to provide a new space for communication (Gronning et al. 2020), and in order to explore how GPs communicate in this new space, we were interested in
identifying oralizations in e-mail consultations written by GPs. To identify these, we were primarily inspired by the works of Carey (1980) and Yus (2011).

Carey (1980) broadly refers to paralinguistic features such as vocal spelling, lexical surrogates, spatial arrays, manipulation of grammatical markers, and minus features (i.e. features that are absent such as spelling errors that are not corrected). His conceptualizations have previously been successfully used to inform works on non-verbal cues in online communication (e.g. Darics 2012, Riordan and Kreuz 2010), which is why we expect that this conceptualization could be valuable in analyzing e-mail consultations as well. In more recent work, Yus (2011) proposes conceptualizing these features as ‘oralized written text’. Yus defines oralized written text – or ‘oralizations’ – as a hybrid discourse that oscillates between oral and written features. Yus argues that these oralizations can help ‘convey attitudes, feelings and emotions that are hard to code in neutral typed text’ (Yus 2011: 179). Whereas the concepts of non-verbal communication and paralanguage are types of meta-communication that can occur in different kinds of communication including face-to-face communication, oralizations specifically refer to oralized written text. Oralizations include strategies such as ‘creative use of punctuation, capitalization and use of emoticons’ (Yus 2011: 179). While there are examples of strategies only referred to by one of the researchers, Yus (2011) and Carey (1980) refer to many similar strategies such as making use of capitalizations or making use of a series of full stops. In this article, we refer to all such strategies by use of the term ‘oralization’, thereby partially expanding on Yus’ exemplification of the term. We find that the descriptions and examples presented by Carey and Yus complement each other well, and jointly, they allow us to create a strong framework from which we are able to build our analysis. In Table 1 below, we provide an overview of different types of oralization.

<table>
<thead>
<tr>
<th>Type of oralization</th>
<th>Explanation</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-standard spelling of words</td>
<td>Phonetic spellings where text is reproduced as it would have been pronounced orally, colloquial spellings where words are reduced, and regiolectal spelling or eye dialect, representing phonetic qualities of a dialect.</td>
<td>Yeeeeeess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What’d you say?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I dunno</td>
</tr>
<tr>
<td>Non-standard or creative use of grammatical markers</td>
<td>Non-standard use of grammatical markers such as capitalization, exclamation marks, quotation marks, or full stops, as well as composing characters into icons (for instance by creating emoticons).</td>
<td>No!!!</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HURRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>:-)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Okay...</td>
</tr>
<tr>
<td>Absence of feature or correction</td>
<td>Non-corrected spelling/typing errors, lack of attention to paragraphing or capitalization.</td>
<td>hi sarah</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Could you tell me?</td>
</tr>
</tbody>
</table>

3
Creative use of spatial arrangement | Leaving space between words, running words together, or skipping lines in order to lend visual support to a message. | Well…………I don’t think so. absolutely amazing

Lexical surrogates | Lexical surrogates can provide a cue of a verbal quality. This can be done through describing a tone of voice, for instance in parenthesis, or through vocal segregates or sound words. This is a way of translating non-verbal behaviour. | hmmm
(he said angrily)
*laughs*
haha

Table 1: Different types of oralization based on Carey (1980) and Yus (2011).

As seen in the table, some of the types require a more “active” action by the writer such as non-standard or creative use of grammatical markers, whereas other oralizations are more “passive” because they are characterised by the absence of a feature or correction, e.g. a GP unintentionally making a typing error and not correcting it.

Methods
The Danish setting
In Denmark, GPs are the first access point to a tax-financed healthcare system providing nearly all services free of charge. Since 2009, it has been mandatory for all Danish GPs to offer e-mail consultations to their patients (PLO 2020). The communication is asynchronous and unlike regular e-mail systems, it takes place in close-messaging systems where some of the now standard formatting features are not available, such as the use of italics, underscoring and emojis. The scale of e-mail consultation use has increased steadily since its introduction. By 2019, the number of e-mail consultations in Denmark constituted 7.2 million per year, corresponding to just under 21% of all GP consultations (PLO 2020). As Denmark is a frontrunner in adopting e-mail consultations, it is an interesting case to study. E-mail consultations have been a fully integrated mode of doctor-patient communication for more than a decade (Grønning et al. 2020). Most GPs have their own website and guidelines on these state that e-mail consultations should only be used for single, concrete questions that are not acute and do not require supplementary questions from the doctor (Assing Hvidt et al. forthcoming). The patient can initiate an e-mail consultation whenever s/he wishes to, and the healthcare professional can respond when it is suitable, most often within a five-day timeframe. E-mail consultations are quite brief as most systems come with a 500-character limit.

Data collection
We asked GPs from four different practices to provide us with all e-mail correspondences from 10 patients each. The GPs were part of the authors’ professional network and selection was thus based on a convenience principle. Two were urban, one suburban and one was rural. All GPs were informed about confidentiality issues and signed an informed consent form. All patients were
informed by their GP about the content of the project via e-mail and written consent was obtained. The study did not require approval from the Central Denmark Region Committee on Health Research Ethics, according to the Consolidation Act on Research Ethics Review of Health Research Projects. To ensure recency, for this article, we selected all e-mails from 2015-2019, totalling 633 e-mails written by 22 GPs (see table 2). These 22 GPs communicated with a total of 38 patients aged 21-91 years. We received the e-mails in printed versions. These were then anonymized by providing GPs and patients with pseudonyms and transcribed verbatim (including typos etc.) into a word document.

<table>
<thead>
<tr>
<th>Year</th>
<th>E-mails</th>
<th>GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>2016</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>2017</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>2018</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2019</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total 2015-2019</strong></td>
<td><strong>633</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

Table 2: The distribution of e-mails written by GPs between 2015-2019.

Data analysis
For the purpose of this article, we analyzed the 633 e-mail consultations written by GPs using the computer-assisted qualitative data analysis software NVivo. In NVivo, we employed codes referring to the specific oralization types used by the GPs; these were oralization types inspired by the works of Yus (2011) and Carey (1980) as seen in Table 1. Our focus was on non-verbal cues that can be created using written text, not visual elements such as avatars, emojis (not to be confused with emoticons), or the ability to format text into bold or italics. Thus, we focused on cues that are not conditional on a specific word processor program.

Our analysis process was thus deductive; however, it also included an inductive dimension as we were open to other ways of using non-verbal cues than described in the theoretical framework. The analysis was conducted by coding the parts of the individual e-mail consultation where the oralization occurred as well as the immediate context of the oralization. Depending on the oralization in question, the parts of the e-mail consultations that were coded could thus be a full sentence, several adjoining sentences, or only parts of a sentence. This created an overview of the number of oralizations as well as the nature of the oralizations. The first author made an initial coding of the entire dataset before these codes were discussed by all authors. Subsequently, the first author coded the dataset again, made adjustments and assigned final codes. The last author then reviewed these codes and made final adjustments.

Results
From the coded material, we were able to detect the number of times the different types of oralizations occurred in the GPs’ e-mail consultations (see Table 3 below).
1. Non-standard spelling of words

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0</td>
</tr>
</tbody>
</table>

2. Non-standard or creative use of grammatical markers

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1. Non-standard use of exclamation marks</td>
<td>1</td>
</tr>
<tr>
<td>2.2. Emoticons</td>
<td>2</td>
</tr>
<tr>
<td>2.3. Non-standard use of full stops</td>
<td>8</td>
</tr>
<tr>
<td>2.4. Non-standard use of capitalization</td>
<td>3</td>
</tr>
<tr>
<td>2.5. Non-standard use of quotation marks</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
</tr>
</tbody>
</table>

3. Absence of feature or correction

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1. Non-corrected spelling and typing errors</td>
<td>892</td>
</tr>
<tr>
<td>3.2. Lack of attention to capitalization</td>
<td>477</td>
</tr>
<tr>
<td>3.3. Lack of attention to paragraphing</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>1376</td>
</tr>
</tbody>
</table>

4. Creative use of spatial arrangement

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
</tr>
</tbody>
</table>

5. Lexical surrogates

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0</td>
</tr>
</tbody>
</table>

6. Inductive findings

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1. Standard use of exclamation marks</td>
<td>21</td>
</tr>
<tr>
<td>6.2. Standard use of parenthesis</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
</tr>
</tbody>
</table>

As seen in Table 3, the number of times the different types of oralization occur greatly differs across the different strategies. In our data, the GPs never make use of non-standard spelling of words or lexical surrogates, and they only rarely make use of non-standard or creative use of grammatical markers as well as creative use of spatial arrangement. However, we found a considerably greater occurrence of the absence of a feature or a correction. In the following, we will provide examples of the different types of oralizations found in the GPs’ e-mail consultations in order to answer our research question, i.e. Do GPs use oralizations when writing e-mail consultations to their patients, and if so, in what way? Because we found no lexical surrogates and no use of non-standard spelling of words, no examples of these types of oralizations will be included. All quotes have been translated from Danish into English.

Non-standard or creative use of grammatical markers

In 17 instances, we found occurrences of non-standard or creative use of grammatical markers. Grammatical markers can be manipulated to add meaning to written text, and we found that the GPs did this in five overall ways. Mainly, GPs made use of non-standard use of punctuation in their communication with the patients. For instance, one GP applied non-standard use of punctuation in the following sentence:

I am aware that you have been under a lot of pressure, but . . . . .

The sentence above follows two sentences in the e-mail consultation in which the GP makes a point of writing that the patient is not honouring an agreement between the GP and the patient. In the example above, by using the series of full stops, the GP is leaving out implicit information, as the
full stops are used as a substitute for actual words in relation to the point about the agreement not being honoured. Pointing back to our theoretical framework, Yus (2011) describes that a series of full stops, in the form of ellipsis, can be used to leave implicit, non-coded (i.e. non-visible) information. This point is thus mirrored in the above e-mail consultation. Furthermore, the strategy of non-standard use of punctuation can be used to indicate pause length (Carey 1980). We found examples of this in our e-mail consultations as can be seen in the following example:

Hi again Carsten.

I understand why you ask. It is unfortunately a little difficult for me to give you an answer as it is some non-specific changes they have found. offhand my thoughts are that according to the description, it does not look critical. If they had a clear suspicion, they would not wait for 6 weeks, that you can be sure of.

This is unfortunately often what happens when we do a scan......

Unfortunately, I can’t give you a more precise explanation.

Best, Thomas

The series of full stops in the sentence third from the bottom indicate a long pause before the GP continues the communication.

Besides the use of non-standard use of punctuation, we also found three instances of GPs using non-standard use of capitalization, for instance in the following example:

You DO NOT have syphilis or HIV.

Non-standard use of capitalization can for instance be used to add stress, modify the tone, or signal a change of voice (Carey 1980). Furthermore, the use of capitalization may communicate positive or negative emotions (Yus 2011). In the above example, the GP is using a non-standard use of capitalization to add stress to the non-presence of syphilis and HIV (human immunodeficiency virus).

Similarly, one GP also made use of quotation marks in a non-standard way, which can ‘indicate that words contained within them are to be heard with a different tone than the rest of the message’ (Carey 1980: 68):

The examination also shows that your back is “rather” worn-out.

In the above example, the word “rather”, which is placed in quotation marks, can thus be read differently than the rest of the sentence. However, in what way the patient is expected to read this word differently may be hard for them to interpret. We also found one example of a non-standard use of exclamation marks:

[Patient e-mail:]

Hi Henrik

I think that you should order an x-ray for me, almost can’t lean on my right leg after a day’s work.
Best, Mads

[GP response:]

Hi Mads

You have to be checked by a doctor first. So come today at 11:30!! If you can’t, then please cancel the appointment.

best Malmroes

The reiterate use of exclamation marks can for instance be used to lend intensity to a writer’s point (Carey 1980). By adding an extra exclamation mark in the GP part of the above e-mail consultation, the GP’s point that the patient should show up for a physical consultation on the same day is thus intensified.

The final kind of non-standard or creative use of grammatical markers we found in the e-mail consultations was when GPs used emoticons or so-called “smiley” icons (Yus 2011). In the case of emoticons, two GPs sent one emoticon each, and there was thus little prevalence of the use of emoticons. According to Yus, ‘the main function of emoticons is redundancy’ (Yus 2011: 168), as is also the case with the two instances of GP use of emoticons, as exemplified here:

[Patient e-mail:]

I don’t need the medication eltroxin as I only need to take 3 pills a week and have a stock that will last several months. Best Lars

[GP response:]

Hi Lars

that’s fine :-)

Best Knud

By writing that it is “fine” that the patient does not need more pills, the GP is acknowledging the patient’s own assessment, which is why it can be considered a positive message. By adding an emoticon to this message, the positivity of the message is reinforced. An alternative use of emoticons is to ‘alter the meaning of the message’ (Yus 2011: 168) by for instance neutralizing or softening a message as well as signalling sarcasm. We did not find any examples of this in our e-mail consultations, and GPs did not, for instance, try to soften a message by use of emoticons.

**Absence of feature or correction**
The oralization we found most frequently was the absence of a feature or the absence of correction. This occurred 1,376 times in our 633 e-mail consultations, averaging more than twice per e-mail
consultation. For instance, we found that GPs frequently did not correct obvious typing errors such as ‘whe nyou have’ instead of ‘when you have’, ‘slipped dish’ instead of ‘slipped disc’, and ‘the tospital’ instead of ‘the hospital’. However, we also found instances of less obvious errors such as missing punctuation in abbreviations. Another absence of a feature was lack of attention to capitalization. GPs would for instance not capitalize names of patients, themselves, names of medication, or names of organizations. For example, there were instances of GPs writing ‘the danish health authority’ instead of ‘the Danish Health Authority’ and ‘jesper’ instead of ‘Jesper’. Moreover, GPs frequently did not capitalize the first word of a sentence. A third kind of absence was the less frequently occurring lack of attention to paragraphing, as can for instance be seen in this example:

Hi You do not have a bladder infection.

**Creative use of spatial arrangement**

Only once did we find that a GP used spatial arrangement creatively:

[Patient e-mail:]
What about the HPV found in your examination? Is that something you die of or die with? On top of the gout and the endoscopy I feel that I won’t be able to handle more bad news! I have a boyfriend, should he contact his doctor?

[GP response:]
Dear Mona

Calm down.

HPV may cause cell changes. That’s why you have to come back in a year.

Only normal cells have been found.

It is a very long way before it might develop into changes that need further action.

If it ever does that?

Your boyfriend doesn’t have to do anything.

Best Lone

In the above e-mail consultation, the GP is using a shift in paragraphs to let the call for the patient to take it easy stand alone, thus creating a spatial pause between ‘Dear Mona’, ‘Calm down’, and
the beginning of an explanation about HPV (human papillomavirus). The above example may thus be seen as an attempt to relieve the patient’s worry through the creative use of spatial arrangement.

**Inductive findings**

As mentioned above, in addition to coding for deductive categories, we were also open to other types of oralization present in our data. We found two other types of non-verbal cue, i.e. standard use of exclamation marks and standard use of parentheses.

As seen above, under non-standard or creative use of grammatical markers, we found just one instance of reiterate use of exclamation marks; however, the use of only one exclamation mark occurred 21 times, as for instance shown in the following example:

Hi Kim

Oh, that sounds really annoying!

I suggest that you book an appointment via our website or with our secretary, for us to look at your shoulder. I would recommend that you give it some rest the next 4-5 days and maybe take some panadol + ibuprofen when necessary.

Best Thomas Matthiesen

As with the reiterate use of exclamation marks, the use of only one exclamation mark in the second sentence above can also lend intensity to the point the GP is making – in this case that something truly sounds annoying. In other words, the use of only one exclamation mark can indicate the distinctiveness of an utterance (Merriam-Webster n.d.).

We also found the way GPs used parentheses called for analytical attention. Parentheses can be ‘used to signal less important or additional information’ as well as ‘to indicate personal comments or meta-markings’ (Darics 2012: 167). We found 26 instances of GPs using parentheses, and typically, they were used to provide explanations to the patients, as can for instance be seen in the following example:

EKG (examination of the heart)

This is a standard use of the parentheses. Some uses of parentheses, however, made us consider whether the parentheses were also used to provide non-verbal cues, as they might be used to describe either tone of voice or GPs’ potential gesticulation. This was for instance the case in the following example:

[…] found a bulging disc(but not an actual herniated disc).

In the above example, the use of the parentheses could point to a shift in the GP’s tone of voice. This is the case as the GP could have chosen to not put the information in parentheses. Choosing to do so may therefore illustrate that the GP is trying to convey some kind of non-verbal cue by using the parenthesis. Nevertheless, unlike many of the examples above, it is not clear how and whether this use of parentheses conveys non-verbal cues.

**Discussion and conclusion**
Our study contributes with a mapping of an important aspect of the transformations taking place in current doctor-patient communication, namely GPs use of non-verbal cues and oralizations in e-mail communication. As communication is a cornerstone in healthcare, it is important to shed light on the modes of communication that appear when doctor-patient communication turns increasingly digital and written. We show that GPs only use a limited variety of oralizations when writing e-mail consultations to their patients. Rather, oralizations typically occur passively through the absence of a feature or correction. In the less frequent, but more active use of non-verbal cues, GPs make use of non-standard or creative use of grammatical markers including non-standard use of exclamation marks, emoticons, non-standard use of full stops, non-standard use of capitalization and non-standard use of quotation marks.

It is interesting that the GPs in our study only to a limited degree make active use of non-verbal cues to convey their messages in e-mail consultations. Research has found that users of computer-mediated communication will typically adapt to the lack of cues available (Riordan and Kreuz 2010), and that when users of a certain communication channel have become accustomed to said channel, they will typically adjust the channel to more accurately convey the capabilities of physical communication (Lo 2008). This could also be the case for the e-mail consultation despite it being a more professional platform. Professional e-mail communication is not static, and norms adjust on a continuous basis (Axtell et al. 2019, Pollock 2006). When the e-mail consultations we analyzed were written, the GPs had been obliged to offer e-mail consultations for six to ten years, and the medium was thus not entirely new. Accordingly, the GPs have had time to become accustomed to the medium and thus use available non-verbal cues.

The GPs’ limited use of oralizations could be linked to the expectation that the language in the e-mail consultation, being a professional communication medium, should meet a high level of formality. The e-mail consultation thus differs from many other forms of computer-mediated communication such as instant messaging exchanges (e.g. Haas et al. 2011, Yus 2011) and chat rooms (e.g. Yus 2011), in that it is a professional communication medium. As we found in our analysis, or rather did not find, many of the features that can for instance be found in young people’s instant messaging exchanges (e.g. Haas et al. 2011) are not found in the doctor-patient communication setting we are exploring here. For instance, we did not find any examples of non-standard spelling of words, and an oralization such as the emoticon may also be considered inappropriate in institutional contexts (Yus 2011). Compared to oral doctor-patient encounters, the low number of emoticons is interesting as research on ‘laughter’ in oral doctor-patient encounters shows that both patients and medical providers draw on laughter in their communication (Zayts and Schnurr 2011). Thus, there seems to be a discrepancy between the norms of oral and e-mail-based doctor-patient communication.

As mentioned previously in the article, there are no set rules regarding expectations about formality in professional e-mails (Axtell et al. 2019). However, even though the Danish setting is very informal compared to other countries (Danish patients will e.g. typically address their GP by their first name), the relationship between GPs and their patients is arguably authoritatively and socially different from the relationship between two friends who are chatting in which informal cues might be more acceptable. Nevertheless, the occurrence of the absence of a feature or a correction averaged more than two per e-mail consultation. This high number of especially non-corrected spelling/typing errors and lack of attention to capitalization points towards an expectation of more informal communication through the e-mail consultation medium, and one might assume, based on the frequency, that GPs assess that mistakes like these are acceptable in e-mail consultations. According to Carey (1980), the absence of correct spelling or proper capitalization ‘can convey a relaxed tone of familiarity with the receiver or quickness of pacing’ (Carey 1980: 68). Thus, the large number of times that absence of a feature or correction appeared might point to
GPs having either a relaxed tone with their patients, or that the GPs are in a hurry when writing e-mail consultations. Either way, it points to an informality in the e-mail consultations as the GPs choose to give a low priority to correcting errors, thereby conveying their attitude to the communication form. That being said, previous research has found that GPs’ language errors in e-mail communication, including grammatical and spelling errors, can also be seen as disconcerting by patients (Schiller et al. 2013). These empirical findings raise questions about our theoretical framework. The ambiguity of interpreting whether ‘passive’ oralizations should be understood as the GP’s conscious strategies or merely as a consequence of workload and typing in a hurry raises the question of how adequate these features describe oralizations as such. Further studies should consider this theoretical question.

There seems to be incoherence as to whether the e-mail consultation demands a formal or an informal communication style. As no official guidelines on communication in doctor-patient e-mail exist, GPs are forced to rely on their own intuition when writing e-mail consultations. GPs thus need to interpret themselves whether the e-mail consultation platform is a communication channel in which typos are allowed and whether using oralizations such as emoticons conforms to a professional writing style. Because patients miss face-to-face characteristics (Fage-Butler and Nisbeth Jensen 2015), it could be argued that GPs should use oralizations more. This is supported by studies that show that the informal and more intimate quality of e-mail communication can strengthen patients’ relationship with their doctor (Andreassen et al. 2006), and that the free style of writing is perceived as an advantage (Car and Sheikh 2004). Maybe an increased use of oralizations from the GPs could contribute to this? It is important to distinguish between different types of non-verbal cues, as for example what we have called passive oralizations such as non-corrected spelling and typing errors can be viewed as problematic by patients as argued by Schiller et al. (2013). It is difficult to know which types of oralization are suitable and to what extent they should be used as no guidelines exist. To be able to develop guidelines and gain knowledge about suitable types of non-verbal cues in e-mail consultations, future studies could advantageously expand on both GPs’ and patients’ views on oralizations as well as expectations in terms of writing style. Specifically, the aim of such studies should be to explore for example to what extent the GP’s and patient’s gender, age and previous contacts between the interlocutors might affect the choice of communicative resources used by the GP as well as investigate variation between different GPs. This could help make it clearer for GPs when and how to appropriately make use of oralizations, and thereby improve doctor-patient communication and patient healthcare. In general, it is important to focus on how to ensure digital professionalism among GPs and other healthcare professionals as new digital technologies are implemented.

The findings of this study may be limited to the Danish context. As mentioned, the hierarchy is quite flat, and the communication style in the e-mail consultations may be influenced by this. Furthermore, the way in which e-mail consultations are organised in the Danish setting differs from other countries in that GPs are both obligated to offer e-mail consultations and receive reimbursement for each e-mail consultation. Methodologically, the concept of oralization has been developed for studying less formal kinds of computer-mediated communication, such as chats and instant messaging. This can be seen as a limitation as the professional relation between GP and patient seems to create another and more formal norm of communication style. However, in our literature search on non-verbal communication, we did not encounter other terms that specifically focused on oralized written text. Many of the terms we did encounter referred to communication in general. Also, we still found that the framework was useful, and especially the distinction between ‘active’ and ‘passive’ oralizations enabled us to shed light on the GPs’ use of non-verbal cues. Finally, our data material came from only four general practices. This is a limitation as these may have a specific and local culture in relation to writing e-mail consultations.
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