

# BMJ Open How do patients and general practitioners in Denmark perceive the communicative advantages and disadvantages of access via email consultations? A media-theoretical qualitative study

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## ABSTRACT

**Objective** Email consultations have become part of everyday doctor–patient communication in many countries. The objective of this study is to investigate how patients and general practitioners (GPs) perceive the communicative advantages and disadvantages of access via email consultation drawing on a media-theoretical perspective.

**Design** We analysed qualitative interview data from general practices in Denmark to identify salient themes.

**Participants** Our data set consists of semi-structured interviews with 30 patients and 23 GPs. The data were collected from February 2016 to September 2019.

**Results** The following themes emerged: (1) lower contact threshold, (2) accessing a new interaction space and (3) access to access. From the patients' perspective, email consultations provided more convenient contact with their GP. From the GPs' perspective, email consultations facilitated contact with patients whom they otherwise rarely saw, but also resulted in overuse and inappropriate use. Patients and GPs considered email consultations as inviting new interactions, facilitating also communication about emotional and sensitive issues. Both patients and GPs experienced email consultations as a way in which patients could achieve easier access to face-to-face consultations (access to access).

**Conclusion** Drawing on a media perspective, this study adds knowledge of how the potentials of the medium of email consultations are perceived by GPs and patients. Email consultations do not simply extend existing forms of contact and consultation (face-to-face and telephone); they produce a new communication space with its own possibilities which result in new practices. With increasing use of email consultations, there may be challenges involved in transferring GP–patient communication to the written medium.

## INTRODUCTION

Email consultations are online consultations that allow general practitioners (GPs) and

## Strengths and limitations of this study

- The theoretical framework that draws on affordance theory is useful for other studies exploring emerging communicative practices that use new media in healthcare settings.
- The use of interviews to investigate perspectives on email consultations and the large data set are strengths of the study.
- In addition, it is a strength that the perspectives of both general practitioners and patients are represented.
- A potential limitation is that the majority of patients interviewed were born in 1954 or earlier (65+ years), but they were included as they participate in email consultations with the highest frequency in Denmark.

patients to communicate via email without requiring their physical and/or temporal co-presence.<sup>1–4</sup> Email consultations, which are intended to supplement rather than replace the dyadic encounter in the clinical setting, take place through closed messaging systems that encrypt the exchanges and integrate them into patients' medical records. Uptake of this relatively new form of consultation is contingent on aspects such as political will, technical infrastructures and the motivation and resources of GPs and patients.<sup>4,5</sup> The use of email consultations by patients varies considerably among general practices when it comes to frequency and purpose.<sup>6</sup>

A literature review on patients' perspectives on email consultations<sup>7</sup> found that patients identified greater access to their GPs as one of email consultations' main advantages. Patient access to healthcare is highly topical

as ageing populations mean that healthcare systems often strain to meet the growing demand for healthcare.<sup>8</sup> GPs in the Danish context, which is our present concern, are required to see increasing numbers of patients,<sup>9</sup> and Danish patients often struggle to see their GPs at the clinic due to GPs' heavily booked schedules.<sup>10</sup> A sense of inaccessibility may be exacerbated by spatial and physical aspects of the clinical setting, as access is mediated by the gatekeeping role of secretaries, having to wait in a waiting room and the length of the consultation, including GPs' own (need for) time management.<sup>11–13</sup> Commonly reported advantages for GPs include reduced phone load and increased efficiency in administration.<sup>14</sup>

In Denmark, general practice serves as a first-contact access point to the fully tax-financed Danish healthcare system that offers almost all services free of charge to citizens. In 2009, a collective agreement made it mandatory for all Danish GPs to offer email consultations to 'increase efficiency and quality through the digitisation of healthcare'.<sup>15</sup> Email consultations were introduced as a cost-effective, convenient means of providing access to GPs, primarily for communication of test results and short questions that could be answered briefly and resolved without the patient being present. In Denmark, email consultation use has increased steadily since its introduction. A recent study found that Denmark had the highest numbers of doctor–patient emails sent/received in Europe,<sup>5</sup> making it a forerunner in the adoption of email consultations and thus an important case to investigate. By 2019, the number of email consultations in Denmark had risen from 1.3 million in 2008 to 7.2 million per year, corresponding to just under 21% of all GP consultations.<sup>16</sup>

Currently, six different software systems (websites and applications) are used in Danish GP clinics to manage email consultations. Clinics decide on which system to use, the amount of text that patients can produce and whether pictures can be uploaded. The potential for patients having greater access to GPs is underlined on the websites of Danish GP practices; patients are, for example, told that they can use email consultations to contact their GP '24/7' and 'day and night', emphasising the possibility of round-the-clock, direct, and patient-instigated access to GPs.

Against this backdrop, we address the following research question: *How do patients and GPs in the Danish setting perceive the communicative advantages and disadvantages of the access that the medium of email consultation provides?* We explore both patients' and GPs' perspectives in order to achieve a fuller understanding of the implications of email consultations for doctor–patient communication, and address the research question using qualitative interview data.

The theoretical frame that guides our analysis derives from medium theory, a perspective that focusses on the potential impact of media per se beyond the content that they convey.<sup>17</sup> We interpret email consultations as involving a communication *medium* that facilitates access between patients and GPs. Communication and media

scholars refer to a medium's 'affordances', meaning the different ways in which users employ a medium<sup>18 19</sup> and how a medium's possibilities are perceived by its users.<sup>20</sup> The concept of affordance helps us identify the limitations and strengths of the medium's materiality, that is, physical properties that have consequences for how the medium is used (including what we conceive of a medium),<sup>21</sup> also referred to as its affordances or *action potentials*.<sup>22</sup> Action potentials point both to the environment and to the observer and should not be studied purely objectively in terms of technical aspects or purely subjectively in terms of users' perspectives; instead, they are best considered as an interplay between humans and technology<sup>23</sup> that enhance our understanding of how technology is applied and perceived.<sup>24–28</sup> More specifically, one recognised action potential of emails is asynchronous production,<sup>23 29</sup> that is, the possibility of planning, producing, sending and reading digital messages without the presence of the other participant(s) in the communication. Using email can be perceived differently depending on factors such as user expectations and context. In order to understand how the affordances of asynchronous production shape the interplay between technology and users, interview data are thus highly appropriate.

## METHOD

This paper draws from a larger qualitative study of email consultations in general practice. The project includes five subprojects that each address key aspects of email consultations: technology, content and relations. The larger project involves a focussed empirical analysis of email consultations and perceptions of such consultations from different theoretical perspectives.

### Data collection

The data set we analyse in this article stems from two of the five subprojects and consists of semi-structured interviews with 30 patients and 23 GPs. The data were collected from February 2016 to September 2019. See [table 1](#) for an overview of the interview participants.

Thirty patients (18 women and 12 men), aged between 40 to 91 years, were interviewed individually or as a couple. All patients were recruited via their GPs through an open call communicated by word of mouth in our professional network within the Region of Southern Denmark, one of Denmark's five geographically defined regions. The interviews were conducted face-to-face in a setting of the

**Table 1** Overview of interviews

Interviews	Number of participants	Gender		Age span
		Female	Male	
Patients	30	18	12	40 to 91
General practitioners	23	12	11	37 to 70
Participants, total	53	30	23	

patients' own choosing such as their homes (23), a senior activity house (5) and a public library (2).

When selecting GPs for the individual interviews, the aim was to achieve variation with respect to the GPs' age, gender, practice type, geographical location and years of practice as a GP. The GPs lived and worked within four of Denmark's five regions: the Region of Southern Denmark (17), the Central Denmark Region (4), the North Denmark Region (1) and the Capital Region of Denmark (1), thus including both urban and rural areas. The interviews with the GPs were conducted either face-to-face (15) or by telephone (8) and lasted between 10:53 and 78:23 min.

All interviews were conducted by AG and EAH. Semi-structured interview guides included open-ended questions such as 'What are the communicative advantages of the email consultation, in your opinion?', 'What are the communication challenges?' and 'In what ways, if any, do email consultations impact on your relationship with patients/your GP, in your opinion?' Recruitment of interviewees continued until sufficient information power (also often referred to as 'saturation') regarding the subject at hand was achieved.<sup>30</sup>

### Data analysis

The interviews were transcribed verbatim and coded using the software programme NVivo 12. The first and second authors, AG and EAH, coded the transcripts in two phases: an initial open coding and a subsequent closed thematic coding using a node structure that reflected identified themes and subthemes and allowed for expansion and reduction along the way. The analytical process was inspired by Kozinets' netnographic approach<sup>31</sup> and included coding, note-taking, abstracting/comparing, checking and refining. All authors compared and discussed the identified themes, relating them to the original transcripts and aligning them where necessary. This analytical work was carried out in a dialectic (abductive) process where we went inductively from the empirical examples in the interviews to the theoretical concepts, and deductively from the theoretical concepts to the empirical examples from the interviews.

### Patient and public involvement

There was no direct involvement of patients or the public in the design of the present study.

## RESULTS

### Affordances of email consultation as a communication medium

Focussing on email consultations as a communication medium, we found that the most prominent affordances derived from the thematic analysis were: (1) lower contact threshold, (2) accessing a new interaction space and (3) access to access (quicker access to face-to-face consultations). From the perspective of the patients and GPs, these three affordances of email consultations involved

communicative advantages and disadvantages relating to doctor-patient communication. In the following, we present the three affordances as perceived by patients and GPs, respectively.

### Lower contact threshold

#### Patient perspective

With respect to lower contact threshold, the technical affordance 'asynchronicity' (cf. section 1, Introduction) was key. Many patients stated that they were happy not to have to attend the clinic in person as they found that email consultations were more convenient than going to see the doctor. The patients emphasised that they did not want to be any bother, and that email consultations felt less disruptive than face-to-face consultations. For example, one patient said, 'I don't want to be any trouble because it's probably nothing', and another, when asked why she preferred email consultations stated: 'Because [that way] you are not any trouble. They answer when they have time'.

Patients appreciated close contact with their GP which they considered to be facilitated by email consultations. At the same time, they knew that GPs are busy as they have many other patients to take care of. As one patient stated, 'I also think that by using email consultations, it must take some of the pressure off [the doctor] in [face-to-face] consultations'. Several patients considered their GP's workflow and mentioned that if they sent an email consultation message in the morning, the GP would answer in the afternoon or the next morning, at the latest. Thus, patients perceived email consultations as less disturbing for GPs, which made it easier for them to communicate with their GP without feeling stressed or under time pressure.

#### GP perspective

The affordance of technical asynchronicity was thematised recurrently by the GPs as one of the great advantages of email consultations for both patients and GPs: 'The advantage is that people can write whenever they want, at night, in the evening, when they are off work and have the time, and the advantage for me as a doctor is that I can look at their inquiries when I have the time'. Many GPs associated the introduction of email consultations in general practice with a 'lower contact threshold', where quick, convenient access was made possible for patients who otherwise might have had difficulties attending the clinic, for example, due to late working hours, long travel distances or mental health issues. One GP described how email consultations had facilitated increased contact and relationship-building with vulnerable patients, for example, those suffering from Asperger's syndrome or autism, who might be reluctant to see their GP in the clinic due to their life circumstances.

Downsides of a 'lower contact threshold' were also mentioned by some GPs. Easy, untriaged access to GPs in some clinics had led to overuse of email consultations,

with some patients burdening GPs with high volumes of email correspondence. As one GP put it:

As 8000 patients have round-the-clock access to us, we receive an enormous number of emails. For some reason, there are some doctors whom patients feel a strong affinity for, and those doctors receive many more emails than the others. The emails are not distributed [between us] because they are not triaged. This kind of untriated access overloads some.

Furthermore, given the direct access facilitated by email consultations and the fact that GPs are obliged to respond to every email consultation, some GPs narrated that some patients, who seemed unsure of where else to turn, used email consultations to address issues that extended beyond the scope of general practice:

Now you can write to your doctor 24/7, and they have to answer. I mean, many things end up here where I just think, 'This has absolutely nothing to do with medical practice'. But you can see that they don't know where to ask their question, and you spend time on it anyway.

### A new interaction space is accessible

#### Patient perspective

The non-physical shared contact space of email consultations broke the traditional association between social presence and physical proximity, creating a new form of mutual presence or co-access. For patients, email consultations were perceived as facilitating new conversations with their GP, which gave them peace of mind. Most patients found that they could ask their GP about anything in email consultations including their worries and concerns. When asked if email consultations would weaken their relationship with the GP because of its more formal framing and written form, one patient stated:

Not at all, quite the opposite. [...] If you have it in writing, you can read it, and you can read it again, because you might have forgotten details. So, for me, it is an advantage [...] Because when talking, there might be something you can't remember because there are so many things [said], but that doesn't happen when you have it in writing.

The written form meant that patients could access and re-access the interaction space without the GP being present at the same time. For patients, this created a safe feeling, and it was highly valued by patients that they could access a space that permanently documented their communication with their GP.

Some patients emphasised that the access to their GPs facilitated by email consultations promoted a clear and straightforward form of communication:

Of course, we are emotional beings, but if we strip it [communication] of emotional talk, it is very

concrete. Does my knee hurt or not? Can I stretch my leg or not? I mean, that is the way my brain works.

Others, on the other hand, liked writing personal and emotional messages to their GP, and found it easy to raise challenging topics by email. Email consultations facilitated a new way of gathering one's thoughts, as this patient explained:

I thought that it must be possible to gather my thoughts in a different way [...]. When it became possible to write to them, I wrote, 'Sleeping is not going well. I don't feel like taking the sleeping pills you gave me because I don't want to deal with the side effects. Are there other options?', and then I get a response. And it is always quick, and it is concrete. It is very concrete, and I am forced to think in a very concrete way.

#### GP perspective

Regarding the co-access facilitated by email consultations, many GPs stated that they appreciated email consultation communication because of its brevity and precision. Compared with telephone consultations, email consultations were perceived as compelling patients as well as GPs to communicate effectively: 'What I really like about email is that it forces both parties to be brief and a little more precise'. Moreover, email consultations were perceived by GPs as providing patients with the opportunity to reflect on their communication, resulting in more considered and constructive communication: 'I think the strength of email is that when they ask me something, they have thought about what they want to ask about'.

Email consultations were also experienced by GPs as facilitating access to new forms of affective communication. For example, if patients were dissatisfied with their care, GPs deemed email consultations to be a good medium for patients' expression of critique:

If they are unsatisfied about something, they are afraid to say upfront... I have found that a couple of times you receive an email where they write and tell you what they are unsatisfied with. That way, they have given it a lot of thought. [...] So, it is really good for that purpose, and it opens up possibilities.

Furthermore, GPs found that email consultations could facilitate emotional disclosure to a greater extent than face-to-face consultations. Patients were able to write to their GP in the moment of affect (eg, anxiety, stress, anger and happiness), in the knowledge that the GP would respond at some point. Several examples were provided by the GPs of how their patients shared their feelings with them, for example, if they were feeling miserable or better in the direct aftermath of a treatment or social gathering.

#### Access to access

##### Patient perspective

Compared with telephone and face-to-face consultations, patients found email consultations to be easier, more

direct and most importantly, untriaged. The patients did not meet a ‘gatekeeping function’ in the guise of a medical secretary or a nurse, nor did they experience delays in getting their message across. In that sense, email consultations were perceived as a means of dealing with a situation directly. If a problem could not be solved via an email consultation, email consultations could expedite the booking of a clinical appointment. One patient described the improved access to their GP as follows: ‘Because I mean, you can’t—after all, you don’t come directly in contact with the doctor, it’s through the nurses up there, right? [...] If I have to go to the doctor, I write.’

Moreover, the patients stated that if GPs deemed the content of a patient’s email consultation message to be unclear or in other ways too complicated to answer directly, he/she typically recommended a physical consultation. Sometimes, GPs booked an appointment time and included information about it in the email consultation response. In that way, patients perceived that they got access to access (face-to-face consultation) more quickly than if they phoned. One patient explained as follows:

I just wrote to him, and I got an appointment. And it was easier to get an appointment directly with him than it is if you book online because then it is several months away. I got an appointment the next day every time.

Another patient emphasised the usefulness of getting their GP’s initial assessment of a situation via email consultations:

And that is also okay, because then they can judge ‘There must be something, let’s get her down here and look at it’. If they had judged ‘That is nothing’, then they would just write ‘You don’t have to worry about that’.

Thus, after the email consultation, the patient knew if the GP considered a physical consultation to be necessary.

### GP perspective

Reflecting patients’ experiences of how email consultations facilitated quick access to access, the GPs discussed how patients used email consultations as a way of bypassing waiting lists: ‘Because sometimes, it is because they want to squeeze themselves in because they can’t get an appointment.’

Furthermore, GPs described how email consultations were used by some patients to ‘test the water’, checking with their GP whether their health problem elicited a ‘wait and see’ or ‘book an appointment immediately’ response:

Sometimes, someone asks about a certain issue, ‘Do I need an appointment?’ And it can be anything from giving them advice and saying, ‘You can just wait and see’ or ‘You need an acute appointment for that—you should call and get one today’.

According to some GPs, these kinds of email consultations could be redundant or wasteful as they would very often elicit responses of the type: ‘We need to see you, you have to come in’, meaning ‘What you are presenting, we can’t deal with via email’; one GP estimated that they redirected ‘one third’ of their email consultations to face-to-face consultations. However, in other cases, email consultations could increase effectiveness: ‘There are definitely some where we say, You don’t need to come in, you will get a prescription’. Like, threadworms, I don’t need to see that.’

## DISCUSSION AND CONCLUSION

### Discussion

In this article, we explored a large qualitative data set of interviews to investigate GPs’ and patients’ perspectives on the communicative advantages and disadvantages of email consultations as a medium for accessing each other. We drew on a media-theoretical framework, focussing on the concept of affordances, as we wanted to shed light on what the *medium* meant for perceived communicative advantages and disadvantages of this still relatively new form of patient–doctor consultation. Three affordances were evident in the subsets of data on doctors’ and patients’ perspectives: email consultations were associated with a *lower contact threshold*, the availability of a *new interaction space* and *access to access*. These affordances are important as they say something about the primary characteristics of email consultations as interpreted by their users. They may also be relevant for other forms of e-mediated communication in healthcare such as doctor–patient online forums; however, further studies would be required to explore this. As pointed out by Mold *et al* (2019) in their review of 57 electronic consultation studies in primary care, remote care includes many other forms of communication than email (eg, telephone, video, text messaging, web-based portals and so on) and research in this area recognises this heterogeneity.<sup>8</sup>

Many of our findings on GPs’ and patients’ perspectives on email consultation communication resonate with those of previous studies. Patients in our study appreciated the lower contact threshold to their GPs. Similarly, in previous research, patients liked being able to contact their GPs from the convenience of their own homes at times that suited them.<sup>2 32</sup>

Similar to other studies,<sup>33–35</sup> patients in our study welcomed having time in email consultations to reflect over their accounts of their health concerns. In our data, patients’ and GPs’ appreciation of the brief, matter-of-fact communication of email consultations reflects the leanness associated with the medium of email.<sup>36</sup> However, we also found that email consultations make it easier for patients to write than talk about sensitive or emotional topics, suggest their own hypotheses for discussion and ask questions, which resonates with previous findings.<sup>32 37–41</sup> Moreover, in previous research, doctors have reported that when used appropriately for relatively



straightforward tasks (eg, prescription refills and information sharing regarding medication or treatments), email consultations can impact the doctor–patient relationship positively and improve continuity of care.<sup>42 43</sup> Patients in our study anticipated that the time used on email consultations might mean more time for consultations in the clinic.

Doctors have voiced their concerns about the potentially negative effects of email consultations on workload, compensation and litigation<sup>7 44</sup> and that email consultations grant patients untriaged access.<sup>43</sup> We found similar results in our data related to GPs' concerns about access to access, whereas patients were pleased about untriaged access to their GPs.

What our article offers with respect to previous studies is a framework for interpreting doctors' and patients' perspectives that links to the medium of email consultations. The findings presented in this article are therefore not 'just' advantages and disadvantages of email consultations; rather, they represent advantages and disadvantages of perceived affordances of the medium of email consultations, that is, email. The lack of a concerted medium-based focus in previous research on email consultations misses the critical aspect of email consultations as occurring in a different medium to the clinical dyad. As we have shown in our article, email consultations permit access that is de-coupled from time and space which significantly impacts the communication that is possible between patients and doctors.

A strength of our study is the theoretical framework that draws on affordance theory coupled with a qualitative approach that involves deductive and inductive approaches; we suggest that this could be useful for other studies exploring emerging communicative practices that use new media in healthcare settings. Besides our theoretical approach, other strengths of this study include the use of interviews to investigate perspectives on email consultations and a large data set. In addition, we see it as very valuable that the perspectives of both GPs and patients are included in our study of the affordances of the medium of email consultations.

A potential limitation of the study is that the majority of patients represented were born in 1954 or earlier (65+ years) which might influence the results. Thus, our findings might not be generalisable to all age groups. Moreover, there is a need for further studies in different countries as our findings are likely to be inflected by the local Danish context (eg, the triage system may operate differently). Finally, we also need to highlight the likelihood that as our patient interviewees were those who chose to use email consultations, they may be quite technology-savvy and thus not be representative of the general population.

## Conclusion

This study adds knowledge of how the affordances of the medium of email consultation may impact access in doctor–patient communication. Communication may

not only be more frequent (lower contact threshold), it may also give rise to very different communicative practices as witnessed by the affordances of the availability of a new interaction space. Moreover, email consultations facilitate access to access as patients have a new means of gaining face-to-face access to their GPs. Email consultations thus do not simply extend existing forms of contact and consultation (face-to-face and telephone); they produce a new communication space with its own affordances which result in new practices. With increasing use of email consultations, it is important to be alert to the possibility that email consultations may involve new roles for patients and GPs, and that there may be challenges involved in transferring some GP–patient communication to the written medium. To keep pace with such developments, we argue, like Schiller,<sup>45</sup> that the knowledge and skill sets that could help manage the communicative demands of email consultations should be reflected in doctors' education. Also, at policy level, there should be greater awareness that email consultations may add extra tasks to GPs, as although email consultations have been promoted to improve effectiveness in healthcare systems, they may increase work strain on GPs.

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**Ethics approval** All participants gave written consent and were informed that participation in the study was voluntary. The study was approved by the institutional review board of the University of Southern Denmark, the Research and Innovation Organisation (RIO) (Journal no. 10457) and was conducted in accordance with the General Data Protection Regulation (GDPR) and the Declaration of Helsinki.

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**Data availability statement** No data are available. We do not have ethics approval to share raw data from our interviews.

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