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Multilevel structures and human agency in relation to email consultations: A strong structuration theory analysis of the Danish general practice setting

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A B S T R A C T

In recent years and throughout the developed world, policymakers have encouraged the implementation of digital patient-clinician interaction. Our focus is on the Danish general practice setting where email consultations were implemented as a mandatory service in 2009 and now constitute 21% of all consultations in general practice. Drawing upon strong structuration theory (SST), our analysis sets out to explore how email consultations are represented in structures on macro, meso and micro-levels and how the interplay between structures and agents plays out with respect to possible alignments, tensions and adjustments. We analyze data from policy documents on the macro and meso-levels, data from clinics’ websites (meso-level) and data from interviews with GPs and patients (micro-level) (n = 53). Our findings show that the introduction of email consultation as a new health technology is a key site for development in email consultation practice, professional boundary setting and adjustments within the doctor-patient relationship. Our findings thus demonstrate that email consultation can be considered a dynamic component of a socio-technical network rather than a static medium for simple health transactions or information delivery. Based on these findings, we recommend that, for future implementation of patient-clinician digital communication it is important to investigate the multiple sources of influence on telecare practices and to see its intended users as agents who actively shape their own care motivated by opinions, relationships and values.

1. Introduction

In recent years, policymakers have encouraged the implementation of digital patient-clinician interaction, often with reference to rationales of managing demand, and improving access and efficiency (Andreassen et al., 2018; Atherton et al., 2018; Zandbelt et al., 2016) as well as the need to “protect” scarce healthcare resources from the unsustainable demands of a growing number of patients with chronic illnesses and multimorbidity (Bashshur et al., 2014; Mirsky et al., 2016; Huygens et al., 2018). To minimize infection during the pandemic, there has also been greater recognition of the importance of identifying other modes of providing health care than via face-to-face communication, such as email consultations (Møller et al., 2021).

The introduction and implementation of digital patient-clinician communication practices, such as email consultations, may be associated with frictions in relation to new sets of expectations, roles and working procedures (Greenhalgh et al., 2014; Grønning et al., 2020; Assing Hvidt et al., 2020). Often, research of email consultations has focused on relational implications for the patient-GP dyad, as well as doctors’ and patients’ experiences of email communications (Andreassen, 2011; Antoun, 2016; Fage-Butler and Nisbeth Jensen, 2015; Assing Hvidt et al., 2020; Grønning et al., 2020; Atherton et al., 2013). However, it should be recognized that email consultations are introduced into and play a role not only in the one-on-one encounter of the clinician and patient but also in a broader social, organizational and political context that is a complex outcome of the interplay between multi-level...
social structures and actors with human agency. We wanted to explore what happens at macro, meso and micro levels when email consultation is introduced and used as a digital consultation form in a general practice setting, where we cover policies (macro level), implementation by organizations (meso level) and views of patient and clinician users (micro level).

To our knowledge, few studies have investigated how processes of technology implementation and adoption take place through recursive relationships between multi-level structures and agents and how processes of change and adoption might have developed into – and from – alignments, tensions and adjustments among groups of users. A few studies show that health technology solutions have both the potential to influence healthcare practices and the doctor-patient relationship positively beyond the confines of face-to-face interactions, but also to create constraints (Greenhalgh et al., 2017, 2018; Petrakaki et al., 2012). Occasionally, when telecare technologies work, they provide clinicians and patients with new, more convenient and efficient ways of communicating and interacting. At other times, they may be associated with disorder, inefficiency and the need for workarounds to alleviate stressful work routines. Our analysis sets out to explore these processes as possible alignments, tensions and adjustments. Exploring these processes enables a fuller understanding of how innovatory health technologies unfold among their users. This understanding is important not only for clinicians but also for those who manage telecare implementation and adoption in healthcare settings.

1.1. Email consultation in Danish general practice

Levels of email consultation use between clinicians and patients, as well as formats (patient portals, triage tools, etc.), vary across countries (Atherton et al., 2013). However, a study found that Denmark had the highest numbers of physician-patient emails sent/received in Europe (Newhouse et al., 2015), making Denmark a forerunner in the adoption of email consultations (OECD, 2016) and thus an important case to study. Our focus is on the Danish general practice setting where email consultations were implemented as a mandatory service in 2009 to “increase efficiency and quality through the digitalization of healthcare” (Praktiserende Lægers Organisation (PLO), 2010) (The Danish Organisation of General Practitioners, 2010). In the following, the acronym PLO refers to the Danish name of the Danish College of General Practitioners: Praktiserende Lægers Organisation (PLO).

Email consultation, as it is used in general practice in Denmark, is an asynchronous two-way digital communication form where patients and clinicians can communicate with each other through a secure messaging system that encrypts the exchanges and integrates them into the patients’ medical records. The patient can initiate an email consultation whenever s/he wishes to, and the health care professional can respond when it is suitable. The patient logs into the clinic’s messaging system (currently, six different software systems are approved for email consultation), either through the web or via an app, using his/her username and password. In January 2019, PLO introduced the mobile application “My Doctor”, a mobile access to email consultation. The patient types up the message and sends it off. In some systems, the patient can choose the GP s/he wants to contact from a drop-down menu, and some of the systems offer the possibility of choosing “all doctors” for quicker responses, while, in others, the email is sent to the clinic’s shared inbox and the secretary triages the emails to the right GP or answers it herself. Email consultation was introduced as part of the development towards delegating clinical and administrative tasks to practice staff, e.g., the medical secretary or nurse, in order to reduce primary care specialists’ workload and increase access to and efficiency in health care provision (Riisgaard and Nexø, 2017).

Email consultation is an evolving technology; different functions have been added, e.g., some clinics have opened up the possibility of attaching files (e.g., pictures of dermatological conditions). As such, email consultations generate new opportunities for users at the same time as they potentially challenge existing forms of care, identities and roles.

Since 2009, initiatives in Denmark have promoted the use of the digital consultation form, e.g., through financial incentives for general practitioners (GPs) (raising the fee for email consultations) and information campaigns for patients on how to use it (PLO, 2015; Sundheds- og Ældreministeriet [Ministry of Health], 2019). To guide GPs in their use of email consultations, PLO describes the appropriate use of email consultations in their collective agreement, which also sets the remuneration for an email consultation (DKK45.08/EUR6.04). Email consultation use in Denmark rapidly increased from 1.3 million consultations in 2008 to 7.2 million consultations per year in 2019, corresponding to 21% of all GP consultations (PLO, 2020). Notably, during that period, there was a decrease in telephone consultation volume from 14.3 million in 2009 to 9.0 million in 2019 (Danske Statistik [Statistics Denmark], 2018; Sundheds- og Ældreministeriet, 2018a, Sundheds- og Ældreministeriet, 2018b), suggesting a realignment of GPs’ work from talk in telephone consultations to written messages in email consultations.

1.2. Structuration theory and strong structuration theory

We use a methodology that draws on sociologist Rob Stones’ (2005) strong structuration theory (SST) (Greenhalgh et al., 2010; T. Greenhalgh and Stones, 2010; Stones, 2005) to help us capture the interplay between technology, users and socio-historical structures, and in order to investigate the implementation of email consultation as a new health technology in general practice. SST is an attempt to provide a more empirically useful version of Structuration Theory (ST) that Giddens (1984) presented in The Constitution of Society which sought to connect society’s structures – i.e., its “rules and resources” – with individuals (agents). Giddens did this by conceiving social structures as being known by individuals and reflected in their actions. SST provides a focus on ontology in situ (rather than the ontology in general of ST), making the interaction that can be observed to happen on - and between - multiple levels of a network on the macro, meso and micro levels the key element in the investigation. SST also considers how the values and knowledge of human agents are influenced by external structures and how this value-knowledge nexus informs and influences agents’ actions to create new structures (Greenhalgh et al., 2014). An SST study thus involves both a structural and hermeneutic analysis by conceptualizing the role of ‘external structures’ as they enter into the ‘internal’ subjective experiences of meso and micro agents.

Compared to earlier studies that saw the introduction of new technology as an occasion for structuring (Barley, 1986), SST makes possible greater attention to the fine-grained connections between different multi-level processes, and to the structurally situated subjectivities and interactions of agents at the micro level.

2. Aim

Employing SST, we wish to explore the interplay between structures and human agents in the context of email consultations. The present article thus aims to contribute to the development of a comprehensive, situated analysis of the processes surrounding the implementation and adoption of email consultation into daily general practice.

We address the following research questions:

- How is email consultation represented in multilevel structures on macro, meso and micro levels?
- How is the interplay (alignments, tensions, adjustments) between structures and agents expressed and perceived at macro, meso and micro levels?
3. Data and methods

3.1. Research design and empirical data

In this paper, we analyze data from policy documents at macro and meso levels, data from clinics’ websites (meso level) and data from interviews with GPs and patients (micro level). The sample recruitment strategies, sample size and analytical strategies are presented separately below each data set.

4. Findings

4.1. Macro level

In their study, Greenhalgh et al. (2010) analyzed social structures using discourse analysis of policy-related texts. In line with this, and in order to explore the macro level structure and identify the discourses that shaped the formation of GP and patient practice, we reviewed macro level national governmental documents on the digitalization of clinician-patient communication. We analyzed all documents available to us for national and local settings (see Table 1 below for further information on the data). In undertaking the discourse analysis, we drew on a Foucauldian understanding of discourse (Foucault, 1972) where discourses are understood to provide the cultural meanings and values of times and places, also within professional institutions, shaping the space for action and legitimizing practice. Not only do discourses, as they include aspirational values, prepare the ground for change, but they also help to sustain practices in the longer term, promoting change as necessary, useful or achievable. However, resistance to powerful discourses and new practices is inevitable (Fage-Butler, 2017; Greenhalgh et al., 2010; Kelly, 2009), hence the “workarounds” evident when new health technologies are implemented in the healthcare setting (Greenhalgh and Stones, 2010; Greenhalgh et al., 2014).

4.1.1. Data set 1: policy-level discourses

Four papers relating to the digitalization of the healthcare system in Denmark that indicate the broader context of email consultation use in the Danish healthcare setting, formed the basis of the analysis (see Table 1). We derived these four papers on the basis of the following strategies: our knowledge of relevant papers, internet searches, and consulting our personal network of researchers and practitioners in the field. We chose these documents because of their focus on implementing digital health technologies and the broader imperative of digitalizing healthcare services in Denmark.

4.1.2. Analysis of data set 1

In our analysis, we sought to identify the discourses that prevailed in the four documents in order to show the legitimatizations and values underpinning the unrolling and sustaining of the digitalization process in the Danish healthcare system. The analysis was conducted by ABF, EAH and AG. Six main discourses were identified in the texts in the following way. We first examined statements (quotations) from our sources that related specifically to the motivation of digitalization processes, where statements are the “atoms” of discourse (Foucault, 1972, p. 80). We then discussed together what to call the discourses in order to capture most faithfully the most salient messages of the texts. We identified the following six discourses: Eminence and excellence, Normalization and inevitability, Digital problem-solving, Meeting health professionals’ needs, Improving healthcare, and Increased patient involvement. It is important to note here that all of these macro policy discourses were introduced ‘at a distance’ from the meso and micro levels where the email consultations were implemented.

The first discourse of Eminence and excellence is evident in various texts where Denmark is championed as a prestigious forerunner in digital healthcare, for example: “Denmark is a pioneering country, also when it comes to digital health. In relation to most parameters, we are number 1 in the world”, (Ministry of Health, 2018, p. 2). Besides highlighting national competence in the area, this statement also indicates that digitalization is well underway. This point is also reflected in the discourse of Normalization and inevitability that constructs digitalization as already normalized into daily practices and an inevitable, fixed feature: “Digitalization has become a natural part of carrying out the tasks in the healthcare system” (Sundheds- og Ældreministeriet, 2017) and “there is really no alternative to increased digital collaboration” (Ministry of Health, 2018, p. 8).

In a third discourse which relates to the discourse on Digital problem solving, digitalization is constructed as creating affordable, sustainable and efficient solutions for a strained healthcare system where healthcare professionals are required to deliver more for less. Exemplifying such a discourse are the following statements: “eHealth is also vital for leveraging secure, efficient work processes, high productivity and high standards of healthcare delivery” (Ministry of Health, 2012, p. 3) (Sundheds- og Ældreministeriet [Ministry of Health], 2012) and: “There is an extensive need for digital solutions in the healthcare system. In coming years, growing numbers of senior citizens and the introduction of new treatments will increase pressure on health sector resources” (p. 3). Here, digitalization is presented as fixing a problem that is well-known by healthcare professionals, in this way forestalling potential resistance to change.

A fourth discourse of Meeting health professionals’ needs characterizes digital communication as taking place on the healthcare professionals’ terms and as a self-contained and remunerated form of communication that makes it possible for them to perform their main tasks as healthcare professionals rather than detracting from them: “Healthcare personnel must have time for core tasks. We need to use IT and digitalization to raise the quality of treatment and make everyday life easier for healthcare professionals” (Statens Serum Institut, 2013, p. 4).

Two moral discourses are also present in the data. First, a fifth discourse on Improving healthcare argues that digitalization leads to superior health care. Digital health care can “create better coherence, collaboration and increased quality in treatment through new technology” (Ministry of Health, 2018, p. 10). Moreover, digitalizing the healthcare system can result in “improved flexibility and effective ways of organizing treatment, leading to improved quality and safety in treatment and care” (Ministry of Health, 2012, p. 5). As health care is the primary concern of healthcare professionals, the logical implication is that digitalization must be the right thing to do.

The second moral discourse relates to Increased patient involvement. Discourses of patient centeredness, patient empowerment and patient involvement promote the idea that digitalization will benefit Danish citizens, helping them feel more in charge of their health, and strengthen existing doctor-patient partnerships. Digitalization, it is claimed, will enable “more individualized treatment by empowering patients and involving them in their own treatment” (Ministry of Health, 2012, p. 5), where “the needs of patients and high quality of treatment” (p. 3) are central. All in all, the above six discourses promote digitalization as doable, morally defensible (by implication, not doing so is not), and inevitable. In this way, the discursive landscape is primed for the integration and use of email consultations.

Table 1

<table>
<thead>
<tr>
<th>Author and date</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Health (2012): “eHealth in Denmark: eHealth as a part of a coherent Danish health care system.”</td>
<td>1.</td>
</tr>
</tbody>
</table>
4.2. Meso level

According to Greenhalgh and Stones (2010, p. 1286), meso level structures include organizations, professional bodies or civil liberties groups, and these “mediate the relationship between the micro and macro and may allow particular actors greater or lesser influence in particular situations”. We analyzed the meso level data in order to uncover the frames within which the micro level can unfold (both for GPs and patients), and identify links to the macro discourses as well. We reviewed two data sets: 1) documents from PLO, corresponding to data set 2 below, and 2) information provided on the “Min Læge” [My Doctor] mobile application and on GP clinics’ websites, corresponding to data set 3 below. These two data sets were chosen as they provided us with all existing descriptions, rules and guidelines about email consultations at the meso level.

The analysis was conducted in the following way: all materials were read by MNB and JEM, who individually identified initial patterns focusing on the descriptions, rules and guidelines of email consultations. These patterns were subsequently discussed and linked to the macro level.

4.2.1. Data set 2: PLO documents

Using PLO’s official documents on their website, we collected all current PLO documents in which email consultation use was described, resulting in the following documents (Table 2).

4.2.2. Analysis of data set 2

Email consultations are defined by PLO as “simple, concrete queries that are not urgent and which do not require supplementary questions by the doctor” (P L O, 2018). P L O (2014) further frames the email consultation by stating that: “it should be completed as one short question from the patient and one short answer from the doctor”. From this, it seems that email consultations can solve certain kinds of health issues digitally, i.e., simple and non-urgent ones. This could imply that offering email consultation to patients is seen as enacting the discourse Digital problem-solving, dealing with the problem of over-filled waiting rooms in the strained general practice setting by moving simple queries into the digital sphere.

According to the remuneration table (P L O, 2019), GPs are paid DKK45.08 (EUR6.04) for an email consultation, which is almost twice as much as the fee given for a telephone consultation (DKK28.08; EUR3.77). This remuneration link to the macro discourse Meeting health professionals’ needs which characterizes digital communication as a self-contained and remunerated form of communication. There is no payment for responding to patients’ supplementary questions or for email messages in which the GP diverts an email consultation to a face-to-face consultation, for booking appointments or filling prescriptions. This may reflect PLO’s aim to protect their members to avoid email consultations resulting in higher workloads than GPs are remunerated for. Furthermore, remuneration also indicates an attempt to regulate the GPs’ mode of writing, urging them to adhere to the recommended norm of one-question-one-answer exchanges.

The organizational level also recommends that clinics provide information about email consultations on their websites, i.e., that patients’ expectations should be “adjusted”, and that information on response times should be provided (P L O, 2014). Furthermore, it is recommended that the GP determines restrictions in relation to the length of email consultation (i.e., number of words allowed) (P L O, 2014). Thus, the macro discourse Meeting health professionals’ needs is again articulated by PLO which focuses on how email consultations should assist in performing their main tasks efficiently rather than detracting from them.

4.2.3. Data set 3: Min Læge [My doctor] mobile application and clinic websites

There are two ways for patients to write an email consultation: through the mobile application “Min Læge” [My Doctor] and through the clinic’s website. The app is the same for all clinics and patients, and the information here is thus standardized. As for the clinics’ websites where patients log on to access an email consultation system, the clinics can create their own information, in their own words. Based on an overview of all Danish GP clinics (N = 1783), a sample of 25% (i.e., 445) of all websites was chosen. To ensure geographical spread, for each of the five Danish regions, a random sample of approximately 90 clinics was chosen. As the five Danish regions consist of both the capital, large cities and more rural areas, a random sample within each region would capture variations in, for example, urban and rural practices. All websites were visited, and information that related to the use of email consultations was copied into an Excel file.

4.2.4. Analysis of data set 3: Min Læge app and clinic websites

The app information clearly aligned with data set 2 in which email consultation use was outlined by PLO. The app information said: “In the email consultation, you can ask your doctor simple questions. You will get an answer within five weekdays. You should only ask one short question at a time”. All of the included websites described the rules for appropriate email consultation use. The website information was closely connected to the discourses, and the first meso level (Data set 2; PLO documents), including the remuneration scheme presented above.

With respect to response time, PLO states that GPs should usually give their response within a maximum of five workdays; however, on many websites, response time is not specified. When response times were specified, then we saw most often alignment with PLO guidelines, i.e., five workdays. However, interestingly, some amended the prescribed maximum response times to fit their own choices. These included 3 and 4 days, and “as quickly as possible”, “a few days”, “two days”. Some websites framed the email consultation as augmented access to general practice, by including statements along the lines that patients could contact the doctor “24/7” or “day and night”. It is interesting that these clinics explicitly framed the email consultation as a possibility for patients to have constant access to their GP. It is thus articulated as a medium of opportunities and flexibility reflecting both the discourse of Improving health care through more flexible and effective ways of organizing treatment, and the discourse of Increased patient involvement through greater or constant patient access.

Furthermore, regarding information on communication style, email consultations are often framed on clinics’ websites identically to the above PLO statements. Messages are expected to be simple, concrete queries that do not require the GP to ask further questions, e.g., “It should only be a single, concrete question that is not acute and does not require supplementary questions from the GP” or “The email is for short and simple questions”. Similarly, the recommendation that the length of email consultations should be restricted is expressed on a few websites: “The message must not be longer than about 10 lines (in the box that appears when you write a message).” Thus, it seems that there is an attempt to move a certain type of communication from the face-to-face consultation to a short and simple communication form in email consultations, generating a new communicative distinction, where email consultation themes appear to be distinguished from more complex themes that should be addressed in face-to-face consultations.

Many websites stated restrictions and prohibited certain forms of patient use. An example of what is not allowed is: “This is NOT for ordering medication or for booking appointments”. This can be considered a translation of the message in the meso level PLO document (data set 2).
to ‘protect members’ and ‘control patients’ modes of communication’. Thus, a preventive and defensive strategy is employed relating to the discourse regarding healthcare professionals’ ability to perform their main tasks (Meeting health professionals’ needs). Some websites even reinforce this by stating that, “It is not a chat forum”, emphasizing that patients need to be restricted in their communication. Throughout the data, we also see one preventive message being repeated that is not a recommendation found in PLO documents (data set 2), i.e., that email consultation queries must not be used for acute or urgent issues, e.g., “so we underline that email consultation is NOT for acute problems”. This warning serves the purpose of preventing patients needing acute treatment being overlooked in the asynchronous email medium with potentially tragic consequences. Such restrictions highlight a clash of discourses: to ensure quality optimization, patient involvement is restricted. The patient is thus given an alternative way of accessing their GP, but must navigate within a restricted, narrow frame.

4.3. Micro level

To explore the micro level, we analyzed data from interviews with GPs and patients about their experiences of and perspectives on email consultation practices. The micro level thus consists of two data sets that derived from interviews with GPs (data set 4) and patients (data set 5).

4.3.1. Data collection and samples

Our data set consists of semi-structured interviews with 23 GPs and 30 patients. The data were collected from February 2016 to September 2019 (see Table 3 for an overview of the interview participants).

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). The interviews with the GPs were conducted either face-to-face (15) or by telephone (8).

30 patients (18 women and 12 men), aged between 40 and 91 years, were interviewed individually (28 patients) or as a couple (2 patients). All patients had participated in at least one email consultation beforehand, and during the interview we discussed their concrete email consultations. The patients were recruited through convenience sampling 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 patients’ own choosing such as their homes (23), a senior activity house (5) and a public library (2).

All interviews were conducted by the EAH and AG and lasted up to 83 min. Semi-structured interview guides included themes such as general user attitudes toward email consultation as a consultation form (including its mandatory qualities), user experiences with email consultation (e.g., frequency in use, development in use, technological barriers), GPs’ and patients’ perspectives on the impact of the email consultation on the doctor-patient relationship, workflow, quality in healthcare, organizational order and routines, the content of email consultations, digital competencies and use of other online health services. Recruitment of interviewees continued until sufficient information power (also often referred to as “saturation”) regarding the subject at hand was achieved (Malterud et al., 2015).

### Table 3

Overview of participants.

<table>
<thead>
<tr>
<th>Interviews</th>
<th>Number of participants</th>
<th>Gender</th>
<th>Age span</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>GPs</td>
<td>23</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Patients</td>
<td>30</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Participants, total</td>
<td>53</td>
<td>30</td>
<td>23</td>
</tr>
</tbody>
</table>

4.3.2. Ethical considerations

All participants provided informed written consent. The study was approved by the institutional review board of (University of Southern Denmark) (Journal no. 10457) and was conducted in accordance with the GDPR and Declaration of Helsinki (World Medical Association Declaration of Helsinki, 2013). (Anonymous, 2016).

4.3.3. Data analysis

The interviews were transcribed verbatim and coded using the software program NVivo12. EAH and AG coded the transcripts in relation to alignments, tensions and adjustments, that is, identified those sequences where GPs’ and patients’ experiences with and attitudes towards email consultations reflected alignments, tensions and adjustments with respect to the identified macro level discourses and the meso level rules and regulations (data sets 1–3). Also, alignments, tensions and adjustments were identified between the agents on the micro level, that is, between GPs and patients (data sets 4–5).

In what follows below, the first section of the data analysis focuses on GPs followed by a focus on patients in the subsequent section.

4.3.4. Analysis of data set 4: subjective experiences of meso agents (GPs)

4.3.4.1. Alignments. As seen above in the discourse Improving healthcare, one of the assumptions underpinning the introduction of digital health technologies at the macro level was that introducing and implementing new communication technologies would mean improved flexibility and lead to more effective ways of organizing treatment. The logic inherent in this discourse of macro level policy agents was seen to be subjectively internalized by meso agents. For example, in several of the GPs’ accounts, they stressed the flexibility of asynchronous email consultations. One GP said: Patients can see it whenever they want, and we can do it whenever we want. It’s very flexible and that’s the cool thing about it (GP 12). Emphasizing flexibility as a core trait of email consultations also aligned with the information provided on the meso level through the clinics’ websites, some of which included the statement that there was constant access to the clinic and that the patient could write day and night.

Some GPs showed their awareness of responsibility and commitment to introducing digital solutions in their clinic in order to manage pressure on health sector resources. One GP commented:

We use it more and more in practice. And the thing about being able to attach files and pictures or maybe even do video consultations in general practice. You could say that in general practice we increasingly need to use modern technology to communicate with patients both to save time and thus be able to handle more patients, as well as meet the patients with the needs that they have (GP 5).

As seen in the above quotation, the GP explicitly mentioned how modern health technologies are increasingly implemented locally in general practice as a response to the general demand of more “modern”, convenient and efficient health service delivery, hereby falling in line with directions imposed by the macro external structures. The perspective on the potential of digital health technologies aligns completely with macro health policies, specifically with the discourse Digital problem solving that focused on health delivery efficiency and optimization as well as improved disease management of a growing patient population through digital health technologies. The possibility of patient choice in consultation types that the GP mentions, which refers to the possibility of attaching files and images or of choosing video consultations, aligns with the discourse Increased patient involvement which promotes patient centeredness, patient involvement and patient empowerment through digital participation. Thus, we see demonstrated in the above how “external structures” have entered into “internal” subjective experiences of meso and micro agents, perceiving them (hermeneutically or interpretatively) through their own frames of
meaning, including their own values and sense of social position.

4.3.4.2. Tensions. The logics of efficiency and decreased workload seen in the health policy documents and the discourse Digital problem-solving rest on the assumption that the patient is able and willing to seek information about digital health technologies. It also follows from this assumption that all patients are equally capable of not only participating digitally but also deducing the right use from the guidelines given on the meso level that distinguish between appropriate and inappropriate use. As shown in the analysis of the website data on the meso level, messages should deal with non-urgent medical issues and be communicated in a short, precise and concise way. This rule thus preempts an imbalance between supply and demand and doctors’ concerns about increased workload. However, as several GPs explained, patients did not necessarily understand or adhere to the instructions about email consultation on the clinics’ websites. As one GP described it: “Many of them think: “Now the line is open. And then they just give it all they’ve got” (GP 11).

Experiences of inappropriate email consultation use challenged GPs’ daily management of email consultations, and tensions thus emerged between the rationale of improving patient access by introducing digital health technologies, and controlling practice workload. Many GPs described how they had experienced an increase in workload and a rise in consultation volume over the years following the introduction of email consultations. One GP unambiguously stated his attitude on workload as follows: “No, it has created a lot of new work. It definitely has. That’s for sure. It has a 100 percent resulted in extra work (GP 11).”

GPs’ experience that many patients wrote email consultations that transgressed the regulations made them respond directly back to the patients driven by regulatory motives. Some GPs talked about how they would “educate” their patients in correct email consultation use. In such situations, instructions and rules at the organizational meso level were integral to establishing and setting boundaries for their professional practice, making it possible to decline a patient request and hence demonstrate a type of structural power over patients: “So, the thing about the patient wanting an examination: “Can’t I just get a referral to a dermatologist? Not! You can’t!” These are the rules, and you can say that quite certainly (GP 1)”.

Policymakers’ claims that introducing email consultation would lead to high quality and safety in treatment and care were also countered by some GPs who used discourses of professionalism. The fact that “inappropriate” email consultations could negatively impact “good” clinical judgement was mentioned as a key concern. Furthermore, reflections on how uncritical use of email consultations could impact on their own role, values and power as a professional gave rise to tension. Thus, in many cases, email consultations were judged on the basis of how effective they were in enabling the GP’s interpretative (and thus diagnostic) capacities. These were in many instances considered compromised by email consultations. Many GPs explained how they “gave up” on at least 1/3 of their emails from patients, meaning that they asked the patient to book a face-to-face consultation instead, because inappropriate use would make them either use too much time or make them unable to apply their knowledge and skills to obtain the best outcome for their patient. In the following quotation, this rationale is exemplified by a female GP. She explained how she shut down those email consultation messages that seemed “fluffy” and “complex”, e.g., patients venting psychological problems or concerns – referring to a dreaded scenario in which her role and identity had been reduced to “mailbox lady”:

I shut it down right away. This is not something that I deal with in an email. I do not think it’s very effective or professional. I mean, I just close it there. I’ll say: “It’s not appropriate. I would like to invite you in for a conversation, and you can decide the time/date”, something kind - but dismissive. Otherwise, I end up being such a mailbox lady chatting back and forth, and that – that I am not. I really don’t want to become a mailbox lady, no, definitively not!” (GP 14)

4.3.4.3. Adjustments. Although many GPs resisted what they perceived as inappropriate, inefficient and unprofessional email consultation practice, some expressed a less normative attitude towards the form and content of email consultations, describing how the email consultation was still relatively new and under development: “It’s still a relatively new tool, and that’s also the case for the patients, so of course it has to find its place, and you have to find out how to use it, and we may be a little in doubt about that sometimes (GP 12).” Experiences of email consultations having to find their right place and not quite knowing how to use them best conflict with the discourses mentioned above on Digital problem solving and Meeting health professionals’ needs that characterize digital communication as more efficient, taking place on the healthcare professionals’ terms and as a way of improving the quality of treatment.

In many cases, however, adjustments of patients’ email consultation practices were perceived to happen over time through educational and familiarization processes within the doctor-patient relationship: “I think that you get to know each other, and then, in the end, they kind of know how (laughing) … they have been educated to use it or they are used to doing it …” (GP 5).

Some GPs even accepted using email consultations more on the patients’ terms: e.g., accepting that patients use email consultations to vent psychosocial and emotional issues with them through writing. These GPs argued that email consultations dealing with such issues would meet patients’ needs and serve a therapeutic purpose through supporting and relieving suffering. For example, one GP was known among her colleagues in the clinic to accept the use of email consultations for more relationship-oriented matters, e.g., responding to her patients’ messages about how they had handled a challenging situation such as surgery, divorce, loss of kin – or simply how they had spent their weekend.

Reflecting on this use, and how it would either align or be in tension with the normative or expected use, she reasoned: “In fact, I think that it’s okay. I mean, it’s okay as long as they feel good writing to me and it means something to them” (GP 6).

Here, we see a willingness to “bend the rules” and argue beyond macro level health policy logics of efficiency and cost-effectiveness, highlighting rationales such as patient-centeredness, patient satisfaction and therapeutic relational alliances.

4.3.5. Analysis of data set 5: subjective experiences of micro agents (patients)

4.3.5.1. Alignments. With respect to the policymakers’ intention of transforming service organization and delivery in order to improve resource utilization, service productivity and patient satisfaction (discourse of Improving healthcare), the patients’ experiences were generally strongly aligned. A patient described it thus, emphasizing flexibility, convenience and efficiency:

Instead of having to sit there in line and call and call and call. I mean, we have entered the world of queuing, right? Regardless of what it’s about, you end up being number five or seven in the queue, right? Therefore, email consultation is much more relaxing. You can just write … and it’s nicely lined up too, how many words you can write and even if you order medicine, right? It’s easy to tick what you would like to order and then … well, then you can pick it up at 2 o’clock in the afternoon (Patient 9)

In the above quotation, a strained healthcare system with overwhelmed phone lines and long waiting times is set into relief by email consultations which are perceived as much less stressful, yet more efficient. Email consultation was also articulated by some patients as making it possible to consult the GP of the patient’s own choice and induce feelings of “freedom and independence”, hereby aligning with the discourses Increased patient involvement and Improved healthcare.

As mentioned above, the need to “protect” scarce healthcare resources from the unsustainable demands of a growing number of individuals with chronic diseases and multimorbidity was one of the main
rational cues for introducing digital health technology solutions for more lean disease management processes. One patient suffering from a chronic disease explicitly mentioned how email consultations had meant much less wasted time for both patients and doctors. The frequent contact to the healthcare system that these patients were obligated to have due to their health problems could now, according to this patient, be handled with much greater efficiency and convenience, e.g., by communicating test results by email communication and not via face-to-face office visits.

Related to the discourse Normalization and inevitability, patients regarded digital contact as an inevitable service in a highly digitalized society. Moreover, some perceived the digitalization of the healthcare system as an already integrated part of the Danish healthcare system, as this patient stated: “It’s so integrated, the digital today, right? One has just as much trust in email consultation [as in f-t-f consultation], I think. Yes.”

Thus, some patients described the possibility of email consultation as a future-proof ‘way forward’:

“I think that it’s the way forward and that it’s win-win for both the doctor and the patient, really. If it was just about rationalization and saving for the system as such, that could be a little vrr-vrr [negative sound]. But I really think that it’s win-win for both parties (Patient 11).”

Interestingly, the patient described email consultations as benefiting both patients and GPs, stressing that this new technology is not just a product of a system’s rationale but rather designed to optimize user experiences, in this way increasing processes of alignment and preempting tensions.

4.3.5.2. Tensions. To improve the practice of email consultation, a few patients urged shorter response times (shorter than five days), which points to potential tensions between the meso level’s rules for answering and the micro level where the patient’s wish for a quick response time clashes with GPs’ work routines and workload. One patient, whose GP was described as slow in answering, stated: “Some work needs to be done in the clinics in order to get them [the GPs] to react a little more quickly. I think so. If they do, this [email consultation] will work really, really well.” (Patient 9).

Moreover, tensions between guidelines on the meso level and the patient user were reflected with respect to the content of email consultation where spatial constraints were perceived as annoying:

“You’re limited in how much you can write and how much you can ask about. I’m not sure how many words you can write in that little box. Sometimes, I haven’t finished writing when I’m stopped. Then I have to go back and delete something and try to write it differently. I don’t think that I am particularly verbose, and it could be nice with a little more space (Patient 24).”

Due to spatial constraints, some patients sent consecutive messages numbering each of them as one out of five (1/5) or one out of three (1/3). These practices can be seen as an example of a “workaround” by human agents in response to external structures and regulations. At the same time, they exemplify technology-in-use with inventions and strategies that are “messy” and “unruly” and that defy the intended purpose of the technology.

4.3.5.3. Adjustments. In many cases, patients found that their email consultation use was adjusted by their GP over time. Patients did not seem to experience any real conflicts in that process. Rather, adjustments took place, e.g., regarding what was suitable to write to the GP about. Several patients mentioned that before fully understanding “appropriate use”, they had written inappropriate content (acute or too complex) or made requests for services that had not been delivered through email consultations such as getting a referral or filling prescriptions. When their requests were “turned down” by the GP, they seemed quite accepting. One patient described how she had experienced some irritation when she did not obtain what she wanted, and thus was obliged to turn up at the clinic, but did not object to the GP’s answer:

“It’s only if I have got something into my head and the doctor thinks otherwise. That can be irritating (laughing). But uh, it’s nothing more than that. Actually I actually think I always get an answer. For example, here she writes: “I will not make a prescription for you”. Then I go: Aribb (sounds irritated), and then I must go to the doctor again. I don’t feel like doing that. But I do see the logic in it. There is nothing to criticize (Patient 2).”

Some patients described how they became more aware of appropriate email consultation form and content through instructions from their GP such as: “Please, be more concrete” or “Please, book an appointment”. One patient who claimed to have learned lessons in terms of writing messages in a precise and concise way, stated: “I think that we are being quietly corrected: “Oh, like that.” And we users, we are actually forced to become more and more concrete” (patient 2).

Moreover, some patients expressed gratitude towards their GPs for their warm and caring behavior and writing style, suggesting that GPs “bending the rules” with respect to appropriate email consultation content might actually meet the needs and wants of some patients. For example, a female patient who was mourning her late husband’s death highlighted as a very positive experience that her GP wrote to her regularly. Looking at one of her messages in which the GP wrote her condolences and offered her help, she said: “It’s positive. It’s ONLY positive! I think so. You can see the way she [the GP] writes. One gets so happy, that she bothers, right? And that she has taken her time doing it (patient 23).”

5. Discussion

In this article, we have analyzed the introduction of email consultations into Danish general practice and into existing routines and socio-technical networks. Using SST as our analytical framework, we have argued that, rather than being a ‘static medium’ that simply brings additional elements to existing practices, email consultation: i) produces significant change in the form and content of doctor-patient interactions; ii) does this gradually through a series of uneven processes that involve some smooth alignments of purpose and values, on the one hand, the creation of some tensions, on the other, and then various attempts to overcome the latter tensions through adjustments to the form and content of interactions; and iii) acts as an opportunity for, and a means through which, doctors are able to reassert a degree of control over professional boundaries, protecting themselves from excessive workloads.

As such, our analysis contributes with deeper understandings of the processes surrounding the implementation and adoption of email consultation into routine general practice. These, we have shown, are influenced by health policy discourses on digitalization, meso agents’ standardization attempts in relation to implementation of a health technology that materializes into real-world practices at the micro level relating to the local circumstances and technology-in-use within a general practice setting. When analyzed together, our findings reveal that within and between these structures, each agent operates within a field of possibilities and constraints resulting in an array of alignments, tensions and adjustments.

Specifically, at the macro level, we identified discourses that highlight the imperative of digitalization of health care as the solution to current problems in healthcare delivery, primarily disciplining the growing demands for health care. This generalized claim has been critiqued by several scholars who have argued that introducing telecare must go hand in hand with analytical and critical attention to human agency among users and the many factors that frame and constrain users in practice (May, 2015; Greenhalgh et al., 2015; Garrety et al., 2014).

Employing an SST approach, the organization of general practice is seen as subject to the pressures of external institutional structures and vulnerable to the actions of agents on the micro level who might choose
to do other than what is expected of them or desirable. Many alignments with the macro discourses were found on the meso level, where abstract and idealistic discourses were transformed into concrete and standardized recommendations and regulations. Inspired by Berg and Timmermans (2000), we could call this regulatory attempt an “order” of communication which creates a yet unprecedented distinction between the “orderly” and “disorderly” communication acts that patients can make within a certain consultation frame, thus demonstrating poor alignment with the idea(l) that health technologies promote additional patient values such as patient empowerment and patient involvement. Following Berg and Timmermans (2000), such a production of “order” always entails a corresponding “disorder”, as also manifested in our analysis. For example, macro health policy, directly and as mediated to the GPs on the meso level, and micro experiences of email consultation users seemed to align poorly. Rather than promoting work efficiency and patient enablement, email consultations were in some respects seen by some GPs as having paved the way for “a new demanding patient” (or “consumer”), illustrating shifts in the balance of power in the doctor-patient relationship, increased inefficiency and workload, and reduced quality in healthcare delivery. Despite external pressure from policymakers on the medical profession to comply with new health technology practices and the efforts of the GPs’ organization to incentivize email consultations, our findings show that some GPs resisted becoming passive victims of political and organizational change. We see how the introduction of email consultation has made some GPs rethink and re-envision their professional role in the process of technology adaptation and adoption. Here, our findings highlight another effect than structure on agency, namely, the impact of agents on agents as demonstrated on the micro level where GPs feel that some patients’ actions around email consultations create for them a role (e.g., a “mailbox-lady”) that does not correspond to their own perceptions of professional GP identity. The case study thus highlights the influence that different groups of situated agents have on each other within their structured relationships and interactions at the micro level. This includes the forms of influence that doctors have on patients, but also the kinds of influence that the patients have on doctors, pushing back against the dominant institutional hierarchies. We have shown how daily communicative acts from GPs to patients often take place with boundary setting as a key purpose in large part legitimized by discourses of professionalism and on what constitutes “good doctoring”. The implications of health technologies on professional identity construction have been discussed elsewhere (Greenhalgh et al., 2014; Pettrakaki et al., 2012) and healthcare professionals’ attempts to guide patients’ conduct and structure work may illustrate what May et al. (2006) have labelled “technogovernance”, following Foucault’s (1986) notion of “governmentality”. Although patient experiences of email consultation use seem to align to a high extent with discourses of patient empowerment, efficiency, flexibility and accessibility, we see how the GPs’ regulatory impulses slowly become embodied in patients’ technological practices, maintaining the status quo with regard to power distribution in the doctor-patient relationship. We have also seen how some aspects of email consultation practices have been developed and evolve between users in what can be described as processes of “co-creation” or “co-design” that have been highlighted as indicators of quality in telecare (Greenhalgh et al., 2015).

Overall, our findings show that the force of the external structures can be extremely powerful, but it is equally important to acknowledge that the intended useful of health technologies are not simple passive recipients of the new technology’s anticipated benefits. They are active agents who can to some extent shape care, motivated by opinions, relationships and values. Some of the more specific findings of this study can only be related to other settings in which written email consultation has the same or very similar format to that in Denmark and in which general practice is organized and functions in ways similar to Danish general practice. It can be concluded that appropriate email consultation practice is not only a result of the combination of macro policy and standardization attempts on the meso level, but ultimately comes into being in each doctor-patient relationship through social processes of negotiations and educational boundary setting. This illustrates the point that political and organizational fixed inputs will not necessarily produce a fixed output (Greenhalgh and Stones, 2010). Seeing email consultation, and other innovative healthcare technologies, as key sites for potential socio-technical development, social meaning-making and clashes between structure and agency might improve chances of a new technology’s adoption.

Our article highlights that solutions to some problems are indeed found by users. Rather than assuming that poor health technology adoption lies at the level of either agents or structures, it is always necessary to consider how structures may affect the new practice for agents and that agents interact at multiple levels to produce practices. It is in the detail of this dynamic that one will discover the reasons for the adoption and non-adoption of a new technology, and for accompanying feelings of satisfaction and dissatisfaction. An understanding of these multilevel relations is important for clinicians and patients, and also for those who manage telecare implementation and adoption in healthcare settings, emphasizing the need for co-design with input from all levels when approaching the future implementation of patient-clinician digital communication.

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