When Online and Offline Environments Meet
Auditory and Visual Environmental Factors, Privacy Concerns, and Self-Disclosure in Video Consultations

Nadine Bol, Tatiana Gromova, Kim Tenfelde, Marjolijn L. Antheunis
Tilburg Center for Cognition and Communication (TiCC), Department of Communication and Cognition, Tilburg University, the Netherlands

Abstract
Theory of situational privacy and self-disclosure posits that perceived levels of privacy are determined by perceptions of the environment, and that certain levels of privacy are necessary for self-disclosure. In video consultations, auditory and visual aspects of the doctor’s environment can cause patients to experience more or less privacy. To provide empirical evidence for these theoretical assumptions, we conducted a 2 (auditory environmental factor: doctor wearing headphones vs. not) by 2 (visual environmental factor: doctor showing the entire office vs. not) between-subjects scenario-based experiment (N = 163). Participants imagined themselves in a video consultation with a doctor and reported their information and territory privacy concerns and willingness to disclose to the doctor. Results showed that the ability to see the doctor’s entire office led to lower information privacy concerns, which – in turn – were associated with increased willingness to disclose medical information to a doctor. Wearing headphones by the doctor did not affect privacy concerns and self-disclosure. Manipulations of both the auditory and visual environment were not significantly associated with territory privacy concerns. These results provide direction for further research on environmental factors and their impact on patients’ privacy concerns and self-disclosure during medical video communications.

Keywords
Video consultations, environmental factors, privacy concerns, self-disclosure.
Video consultations are a rapidly evolving service, providing patients with access to high-quality medical care using informational technology (Kichloo et al., 2020). Video-mediated communication (VMC) is expected to replace and has already replaced – for example during the Covid-19 pandemic – some of the face-to-face doctor-patient interactions (Barsom et al., 2021; Greenhalgh et al., 2020). Video consultations make doctor-patient communication reachable and cost-effective (Kichloo et al., 2020). Despite these benefits, patients experience barriers to sharing private information in online environments, for example, due to privacy concerns (Bol & Antheunis, 2022).

Sharing personal medical information, also called self-disclosure, is a vital component of communication between a patient and a doctor (Tates et al., 2017). Self-disclosure is defined as the voluntary and intentional revealing of private information about oneself to others (Derlega et al., 1993). Self-disclosure by patients about the symptoms of their disease is crucial for doctors to make an adequate diagnosis (Tates et al., 2017), which may subsequently have a long-term impact on the development of the disease and, hence, on the overall well-being of the patient (McDonald et al., 2013). With rising numbers of video consultations in clinical practice (Barsom et al., 2021), there is an urgent need to understand factors that prevent patients from self-disclosing in online medical encounters.

Privacy is one of the key factors affecting disclosure behaviours online (Joinson & Paine, 2012). Privacy is defined as people’s freedom to determine when, how, and to what extent information about them is communicated (Westin, 1967). When individuals have concerns about the possible loss of privacy, so-called privacy concerns, their disclosure decision may be influenced (Baruh et al., 2017). In the health context, more privacy concerns have been linked to lower willingness to self-disclose (e.g., Bol & Antheunis, 2022).

Many studies have operationalised privacy concerns as information privacy concerns (e.g., Malhotra et al., 2004), referring to people’s worries about the ability to control the access and use of their personal information (Altman, 1975; Westin, 1967). Consequently, information privacy concerns have primarily been considered in understanding online behaviours, such as self-disclosure. This makes sense from a data protection standpoint, as the security and protection of patients’ personal data have been a main concern ever since the early onset of digitisation in clinical care (Keshta & Odeh, 2021; Valecha et al., 2021). However, VMC blurs boundaries between online and offline environments, with patients’ personal data not only being collected in virtual but also in offline spaces, which is not covered by software protection. Patients might therefore also feel worried about the degree of surveillance as well as physical access to their personal space during VMC. As such, it can be expected that VMC elicits concerns about other aspects of privacy, such as territory privacy. This form of privacy refers to the freedom to control who has access to their private territory (Altman, 1975; Lin, 2013; Westin, 1967), and territory privacy concerns thus relate to people’s worries about who else can be present in one’s personal space. The unexpected presence of others can disrupt perceived privacy and confidentiality of space, which may create an atmosphere of discomfort and inhibit self-disclosure. Video-mediated environments might especially elicit such concerns as patients and doctors do not share the same physical space, which could make it difficult to oversee who else has access to both physical spaces. The first aim of our study is therefore to understand how different types of privacy concerns (i.e., information vs. territory) contribute to our understanding of self-disclosure in VMC.

To better understand how people manage their information and territory privacy, we should consider the environment in which VMC takes place. The level of privacy of a particular
situation can be determined by environmental factors surrounding an individual at that moment (Masur, 2018). Environmental factors are defined as “all characteristics of the physical or virtual space in which the behaviour of interest takes place.” (Masur, 2018, p. 168) These factors can be auditory (e.g., audible sounds for the interaction partner) or visual (e.g., objects or persons visible for the interaction partner), and are constantly intertwined (Kuwano et al., 2001). In clinical practice, medical guidelines have suggested several tactics to regulate auditory and visual aspects of the doctor’s environment, such as using headphones during video consultations and avoiding specific (virtual) backgrounds (e.g., Meuter et al., 2021; The Royal Dutch Medical Association, 2021). However, empirical data supporting the effectiveness of these guidelines (i.e., in enhancing privacy perceptions and self-disclosure) has been lacking so far. Hence, the second aim of our study is to understand if and to what extent people’s information and territory privacy concerns and willingness to disclose medical information are affected by auditory and visual environmental factors. Our results can be translated to valuable insights for healthcare professionals, for example, in the form of guidelines and policy recommendations for video consultations.

**Privacy Concerns and Self-Disclosure in Video Consultations**

Digital technologies have become convenient channels for patients to share health-related information. By sharing information, individuals hope to gain various benefits, such as medical advice, access to health providers, and personalised health evaluations (Bansal et al., 2010). Although the rise of digital technologies presented many opportunities for telemonitoring and telehealth, it was not until the outbreak of the covid-19 pandemic that the public demand for video consultations increased and video consultations became a more prominent and consistent practice in healthcare (Ali et al., 2020; Latifi & Doarn, 2020). Many countries worldwide experienced a substantial increase of video consultations during the pandemic, and telemedicine services are expected to be integrated more and more with traditional (in-person) healthcare services in the upcoming years (e.g., Omboni et al., 2022).

However, one of the remaining challenges in video consultations is protecting patient privacy and managing privacy concerns (Mishkin et al., 2023; Omboni et al., 2022). Privacy concerns have been reported as well-known barriers that impact the use of digital communication applications, such as social media, in healthcare (e.g., Antheunis et al., 2013) as well as the use of video consultations specifically (e.g., Mishkin et al., 2023). Privacy concerns typically impact self-disclosure outcomes. A meta-analysis revealed that users with higher privacy concerns are generally less likely to use online services and share personal information online (Baruh et al., 2017). Privacy concerns have also been oftentimes linked to self-disclosure in health-related contexts. For example, online health platform users expressed lower intentions to self-disclose on these platforms when they experienced privacy concerns (Zhang et al., 2018).

One of the main individual needs in medical contexts is to keep disclosed information private and confidential, and to have control over what happens to personal information and who has access to it (Allen, 2021). This encompasses the need for information privacy, which pertains to the freedom to keep personal information to oneself. The protection of patients’ privacy in medical information exchanges has received particular interest from researchers (Shaw et al., 2009). More information privacy concerns have been linked to lower willingness to share health-related information online (e.g., Li & Slee, 2014).
Most of the evidence for the association between information privacy concerns and self-disclosure considers either online or offline spaces. VMC, however, presents a somewhat different environment, as it crosses both online (e.g., virtual video-mediated environment) and offline (e.g., the doctor’s office) spaces. To illustrate, information shared in a video consultation can be safely stored in a medical database, but such software protection does not apply to the same information being overheard by bystanders, such as other patients, in the offline space. For some patients, the perception of such risk leads them to withhold vital information from healthcare professionals (Larsen et al., 2013). We therefore examine the relationship between information privacy concerns and self-disclosure in a VMC context, in which privacy perceptions about online and offline environments together shape self-disclosure decisions. Drawing upon existing evidence regarding information privacy concerns and self-disclosure, we hypothesise:

**H1:** People with greater information privacy concerns will be less willing to disclose health-related and medical information to a doctor in a video consultation.

In video-mediated environments, privacy concerns may not only elicit due to perceived lack of information privacy, but also due to the perceptions of infringement of their territory privacy. Territory privacy is also often referred to as physical privacy, which refers to the degree of surveillance and physical access to one’s personal space (Burgoon, 1982; Teutsch et al., 2018). Territory privacy thus pertains to the freedom to keep out others from one’s physical space. People have certain expectations about privacy in the doctor’s physical environment as well as in virtual spaces in which video consultations take place. For example, patients expect solitude such that they are not needlessly monitored or secretly filmed (Allen, 2021). Territory privacy is strongly related to territoriality, which combines the physical space, such as one’s home or a hospital, and the behaviour of people in it (Leino-Kilpi et al., 2001). In VMC, physical boundaries can be managed by, for example, seeking seclusion and ensuring that interaction partners are alone on each side (Teutsch et al., 2018).

Territory privacy has not yet received much empirical attention in the health communication literature. Although qualitative research has suggested that people feel equally comfortable to discuss private matters via video-mediated channels as they would in face-to-face conversations (Teutsch et al., 2018), no studies to date investigated the relationship between territory privacy concerns and self-disclosure in video-mediated doctor-patient interactions. Given the physical environmental dimension of VMC, such knowledge would be highly relevant to better understand how privacy perceptions are construed when engaging in online doctor-patient interactions. Based on theoretical assumptions regarding the relationship between territory privacy concerns and self-disclosure, we expect:

**H2:** People with greater territory privacy concerns will be less willing to disclose health-related and medical information to a doctor in a video consultation.

Information and territory privacy concerns are closely related. For example, when people perceive the risk of unwanted access to their private territory, they also perceive the risk of unwanted access to private information they disclose there (Lin, 2013). As such, territory privacy concerns may directly impact information privacy concerns or may even conceptually overlap with information privacy concerns. Nonetheless, the impact of these two concepts on patients’ willingness to self-disclose may differ, as they encompass different privacy needs and expectations. For instance, information privacy concerns might be related to what and how
much people would want to self-disclose, while territory privacy concerns might be associated more with to whom people would want to self-disclose (Lin, 2013). Previous literature has mainly focused on how information privacy concerns affect self-disclosure, while the possible impact of territory privacy concerns has been left out of researchers’ sight (Allen, 2021). Consequently, we know little about how information and territory privacy concerns may differentially influence self-disclosure. We therefore aim to answer the following research question (RQ):

**RQ1:** When simultaneously including information and territory privacy concerns, which of the two privacy dimensions is the strongest predictor of self-disclosure?

### Environmental Factors, Privacy Concerns, and Self-Disclosure

To better understand how patients’ privacy concerns are shaped and self-disclosure occurs, we should consider the environment in which video consultations take place. In his theory of situational privacy and self-disclosure, Masur (2018) posits that perceptions of the environment determine the level of privacy people perceive, and that a certain level of privacy is needed to self-disclose. He further argues that the environment consists of interpersonal (i.e., perceived characteristics of other people) and external factors (i.e., perceptions of physical cues, such as objects), and that these vary across situations. In offline contexts, aspects of the environment can affect privacy perceptions and self-disclosure. For example, open consultation room doors have been found to impede privacy and self-disclosure in primary healthcare (Pratiwi et al., 2022) and modifying spatial and lighting conditions have been found to stimulate self-disclosure, such as increasing room size (Okken et al., 2012) and dimming lights (Miwa & Hanyu, 2006).

People do not only adapt their self-disclosure to the level of privacy they perceive in a specific situation, but they also actively seek privacy to enable self-disclosure. As such, people actively choose to manipulate environmental factors (Masur, 2018). In VMC, environmental factors can be auditory (e.g., audible sounds for the interaction partner) and visual (e.g., objects or persons visible for the interaction partner), since video transmits both picture and sound (Manstead et al., 2011). The environment can consist of many different auditory and visual factors that may differ in their level of controllability. For example, one can blur their video background to create a form of privacy, but cannot control that the interaction partner finds him or herself in a private environment. Thus, achieving privacy may involve manipulating various environmental factors that could either be controlled by people – at least to some extent – or not at all.

Previous studies have suggested several strategies to manipulate auditory and visual environmental factors in the context of video consultations. For auditory factors, it has been suggested that headphones can be used to establish privacy in online medical practice (Meuter et al., 2021; Smith & Badowski, 2021). Although doctors might typically do their consultations in a separate, private room, interruptions to consultations occur frequently regardless of healthcare setting (Rivera-Rodriguez & Karsh, 2010). Arguing from the assumptions of the theory of situational privacy and self-disclosure, it could be expected that when a doctor uses headphones, people may experience higher levels of privacy and self-disclosure intentions, as no other person – that might have entered the doctor’s consultation room – than the doctor can overhear the interaction. However, to our current knowledge, none of these studies has empirically tested whether doctors’ headphone use indeed affects privacy concerns and self-
disclosure. To cover the gaps in the literature regarding the effects of auditory environmental factors, the following RQ was formulated:

RQ2a: To what extent does a doctor’s use of headphones affect people’s information and territory privacy concerns and their willingness to self-disclose health-related and medical information to a doctor?

The environment in which VMC occurs also covers various visual factors. These are typically displayed through people’s video background, and may impact privacy perceptions (Herder & Gullit, 2022). The video background of the interaction partner may play a crucial role in managing one’s privacy, as information is not only transmitted in the environment of the sender, but also in the environment of the receiver. Patients might therefore want to see what and who else is in the physical environment of the doctor. The doctor’s choice for a video background can thus impact privacy perceptions of the patient, which may be enhanced through visibility and transparency of the physical space surrounding the doctor. Although the doctor’s physical environment cannot be manipulated by the patient during a video consultation, the ability to see the doctor’s entire office, and who else is in it, might enhance feelings of privacy. However, such propositions based on the tenets of Masur’s theory (2018) have not yet been tested.

Contrary to patients’ potential wish to see the doctor’s entire physical environment, clinical guidelines have mostly advised clinicians to use professional video backgrounds that are clean, neutrally coloured, and free from distractions (e.g., Elliot et al., 2022; Onor & Misan, 2005). Some guidelines even advise not to display any physical objects, like pictures on the wall (Onor & Misan, 2005). Empirical evidence backing up the effectiveness of these clinical guidelines is, however, scarce. One study, for example, did not find any empirical support for the effect of using different backgrounds on patient experiences, but demonstrated that subjective impressions of those backgrounds did influence patient outcomes, such as recall of information and patient satisfaction (Stosic et al., 2022). Given the lack of empirical evidence for the possible relationship between visual environmental factors, privacy concerns, and their self-disclosure, we posed the following RQ:

RQ2b: To what extent does showing the doctor’s office in the background affect people’s information and territory privacy concerns and their willingness to self-disclose health-related and medical information to a doctor?

Methods

Design

We conducted a 2 (auditory environmental factor: doctor wearing headphones vs. not) by 2 (visual environmental factor: doctor showing the entire office vs. not) between-subjects experiment. The auditory environment was manipulated through the doctor being depicted with headphones during a video consultation. The visual environment was manipulated by allowing patients to see the entire offline space the doctor is in and who else is present in it. Using a vignette-based approach, we investigated whether these environmental factors affect information and territory privacy concerns and willingness to self-disclose. A vignette-based design was chosen to allow for better standardisation of and control over manipulated variables and minimise the influence of socially desirable responses (Hughes & Huby, 2002).
Participants and Power Analysis

Data were collected from 163 participants, who were at least 16 years old, had a sufficient level of English (to understand the questionnaire), had visited a doctor at least once in their lives, and had experience using video conferencing tools. Participants were on average 28 years old \((M = 27.72, \ SD = 7.87)\), and 63% identified as female \((n = 103)\), 33% as male \((n = 53)\), and 2% as non-binary/third gender \((n = 4)\). Most participants reported having a Bachelor’s \((47\%, \ n = 77)\) or Master’s degree \((36\%, \ n = 59)\). Our sample covered 34 nationalities, including Dutch \((45\%, \ n = 74)\), Russian \((12\%, \ n = 20)\), and German \((4\%, \ n = 7)\). On average, participants visited a doctor about once or a couple times a year and reported using video-conferencing tools, such as Skype or Zoom, about once a week.

We conducted an a priori power analysis using G*Power to determine the minimum sample size to test the correlations between auditory and visual environmental factors, privacy concerns, and self-disclosure. With two dichotomous predictors, we calculated the power based on the point biserial model, with medium effect sizes \((\beta = .30)\), an alpha set at .05 (two-tailed), and an expected power of 80%. It showed that a sample size of 164 participants was required to detect both main effects of auditory and visual environmental factors. With our sample of 163 participants, a post hoc power analysis showed that we reached 80.3% statistical power.

Procedure

Data were collected online between May and July 2022. Participants for the study were recruited using convenience and network sampling methods (e.g., via SurveyCircle and LinkedIn pages). The invitation to participate included a link directing participants to a Qualtrics webpage in which the experiment was programmed. Participants were first presented with an introduction page and informed consent statement which they were asked to read and agree to. They were then asked some inclusion questions, and only participants who reported having experience with doctor’s visits and using video-conferencing tools were randomly assigned to one of four experimental conditions. After reading their assigned vignette, participants were asked to answer survey items related to the manipulation checks, information and territory privacy concerns, and willingness to self-disclose. At the very end, participants completed demographic questions about age, gender, educational background, and nationality. The study was approved by the ethical review board of the Tilburg School of Humanities and Digital Sciences (reference number: REDC # 2019/35ab).

Stimulus Materials

We developed four vignettes in which we described a scenario in which participants had to imagine themselves in a video consultation with a doctor. Participants were asked to imagine that they felt unwell and decided to make a doctor’s appointment. We specifically refrained from asking participants to consider discussing their own health-related issues with their own primary care doctor, as prior doctor-patient relationships and experiences are expected to influence various intermediate (e.g., trust) and long-term outcomes (e.g., patient satisfaction; De Haes & Bensing, 2009), and might therefore interfere with perceptions of privacy and self-disclosure. We also did not ask participants to imagine a specific health condition, as it underlies several factors such as the level of urgency of a health issue, which could moderate the effect of privacy concerns on self-disclosure (Acquisti et al., 2015). According to our imagined situation, participants had to provide their personal medical information to a doctor.
during a video consultation. The scenario continued by telling what participants would see as the doctor entered the virtual consultation room. All four scenarios were supported with a picture in which the doctor was shown as described in the scenario. These picture stimuli were added to help participants better imagine the scenarios. The auditory environment varied between the doctor wearing headphones versus no headphones. The visual environment varied between the doctor showing the entire office in the background versus a white wall only. Among 24 participants not part of the final sample size, we tested to what extent the manipulations incorporated in the stimulus materials were recognised and attended to. Based on the results (i.e., 41.7% of the participants not remembering whether the doctor wore headphones, 37.5% not recalling the doctor’s video background being the entire office, and 33.3% incorrectly recalling the white wall in the doctor’s background), we concluded that participants did not pay significant attention to auditory and visual environmental manipulations to recall it later. We therefore boldfaced the text in the scenarios that described auditory and visual environmental manipulations, thus emphasising factors people should pay attention to. The four vignettes including the picture stimuli can be found in Appendix A of the online supplementary materials (OSM).1

**Measurements**

**Privacy Concerns.** We distinguished between information and territory privacy concerns. Information privacy concerns referred to individuals’ worries about their ability to control access and use of their personal information (Westin, 1967). They were measured with four items adapted from Baek and Morimoto (2012), such as “I am afraid that my medical information that I consider private may become available to other people when having an online video consultation.” Territory privacy concerns reflected individuals’ worries about their freedom to configure access to their virtual or physical private territory and were measured with four items reflecting three dimensions of territory privacy concerns: access, control, and awareness (Lin, 2013). An example item was “I am afraid that the doctor’s office can be accessed by other people during our online video consultation.” All items were assessed on 7-point Likert scales ranging from **totally disagree** (1) to **totally agree** (7). Information and territory privacy concerns were considered separate, yet related constructs in the analyses. Confirmatory factor analysis (CFA) showed adequate fit for these two constructs, $\chi^2 (19) = 46.25$, $p < .001$, comparative fit index (CFI) = .98, Tucker-Lewis index (TLI) = .97, root mean square error of approximation (RMSEA) = .09, standardised root mean squared residual (SRMR) = .02. Both scales were considered reliable (information privacy concerns: Cronbach’s $\alpha = 0.94$, $\omega$ total = 0.95, average variance extracted [AVE] = .81; territory privacy concerns: Cronbach’s $\alpha = 0.93$, $\omega$ total = 0.93, AVE = .76).

**Self-Disclosure.** Self-disclosure referred to people’s willingness to reveal personal information about themselves during video consultations and was measured with ten items (Bol & Antheunis, 2022). The items preceded the following question: “How likely are you to share the following personal information with the doctor via an online video consultation as described in the scenario?” and were assessed on 7-point Likert scales ranging from **very unlikely** (1) to **very likely** (7). Example items were “Information about your nutrition or diet” and “Your medical history.” While earlier research described self-disclosure as a second-order construct, with self-disclosure of health-related and medical information as two first-order constructs (Bol & Antheunis, 2022), our data showed poor fit for such a solution.
Consequently, we considered self-disclosure of health-related and medical information as two separate, yet related constructs, for which a CFA showed acceptable fit, $\chi^2 (34) = 165.30, p < .001$, CFI = .91, TLI = .88, RMSEA = .15, SRMR = .10. Both scales were considered reliable (health-related information: Cronbach’s $\alpha = 0.88$, $\omega$ total = 0.88, AVE = .58; medical information: Cronbach’s $\alpha = 0.95$, $\omega$ total = 0.95, AVE = .77).

**Manipulation Checks.** We checked whether the manipulations were observed as intended by asking participants to state whether three statements related to the manipulations were true or false: “The doctor in the scenario wore headphones,” “The doctor in the scenario installed the video camera such that you could see the entire office behind the doctor,” and “The doctor in the scenario installed the video camera such that you could see only white wall behind the doctor.”

**Statistical Analysis**

We conducted our analyses with R (Version 4.2.0). We used the *lavaan* package (Version 0.6-11; Rosseel et al., 2020) to model the hypothesised relationships using structural equation modelling. For H1 and H2, we first estimated two models to test the separate relationships between information privacy concerns and self-disclosure and territory privacy concerns and self-disclosure. For the RQs, one structural equation model assessed which of the two privacy dimensions was most strongly associated with self-disclosure (RQ1) and another assessed the relationships between auditory and visual environmental factors, privacy concerns, and self-disclosure (RQ2a and RQ2b). In each model, auditory and visual environmental factors were included as dichotomous variables and self-disclosure of health-related and medical information as two separate, yet related variables. We performed Chi-square tests to check whether the manipulations of the auditory and visual environment were indeed observed as intended.

**Results**

**Manipulation Check**

A total of 92.0% of the participants correctly stated to have noticed the doctor (not) wearing headphones, 91.4% correctly noticed the entire background of the doctor’s office, and 95.7% correctly reported to have seen a white wall as the doctor’s background. In all conditions, the correct answers overstated the incorrect answers for both the auditory and visual environmental manipulations, $\chi^2 (3) \geq 112.36, p < .001$. As such, we considered the manipulations successful.

**Information and Territory Privacy Concerns**

We found significant relationships between information privacy concerns and self-disclosure of health-related and medical information (H1). In line with our expectations, higher levels of information privacy concerns were associated with lower willingness to disclose health-related information ($\beta = -.30, p = .001$) and medical information ($\beta = -.54, p < .001$). Regarding the relationship between territory privacy concerns and self-disclosure (H2), we also confirmed our hypothesis. People with higher levels of territory privacy concerns were less likely to disclose health-related information ($\beta = -.30, p = .001$) as well as medical information ($\beta = -.55, p < .001$). Table 1 presents a detailed overview of the hypothesis testing results.
Table 1. Direct Relationships Between Auditory and Visual Environmental Factors, Information and Territory Privacy Concerns, and Self-Disclosure of Health-Related and Medical Information

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>β</th>
<th>SE</th>
<th>p-value</th>
<th>z-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1IPC → SDhealth</td>
<td>-0.15</td>
<td>-0.30</td>
<td>0.04</td>
<td>.001</td>
<td>-3.41</td>
<td>-0.06, -0.30</td>
</tr>
<tr>
<td>IPC → SDmedical</td>
<td>-0.42</td>
<td>-0.54</td>
<td>0.06</td>
<td>&lt; .001</td>
<td>-7.48</td>
<td>-0.31, -0.54</td>
</tr>
<tr>
<td>H2TPC → SDhealth</td>
<td>-0.18</td>
<td>-0.30</td>
<td>0.05</td>
<td>.001</td>
<td>-3.38</td>
<td>-0.08, -0.30</td>
</tr>
<tr>
<td>TPC → SDmedical</td>
<td>-0.52</td>
<td>-0.55</td>
<td>0.07</td>
<td>&lt; .001</td>
<td>-7.15</td>
<td>-0.38, -0.55</td>
</tr>
<tr>
<td>RQ1IPC → SDhealth</td>
<td>-0.08</td>
<td>-0.15</td>
<td>0.11</td>
<td>.485</td>
<td>-0.70</td>
<td>-0.29, 0.14</td>
</tr>
<tr>
<td>IPC → SDmedical</td>
<td>-0.10</td>
<td>-0.16</td>
<td>0.13</td>
<td>.464</td>
<td>-0.73</td>
<td>-0.36, 0.16</td>
</tr>
<tr>
<td>IPC → SDhealth</td>
<td>-0.20</td>
<td>-0.25</td>
<td>0.17</td>
<td>.243</td>
<td>-1.17</td>
<td>-0.53, 0.13</td>
</tr>
<tr>
<td>TPC → SDmedical</td>
<td>-0.30</td>
<td>-0.32</td>
<td>0.21</td>
<td>.152</td>
<td>-1.43</td>
<td>-0.71, 0.11</td>
</tr>
<tr>
<td>RQ2aAuditory → IPC</td>
<td>-0.55</td>
<td>-0.16</td>
<td>0.26</td>
<td>.035</td>
<td>-2.11</td>
<td>-1.07, -0.04</td>
</tr>
<tr>
<td>Auditory → TPC</td>
<td>-0.23</td>
<td>-0.08</td>
<td>0.22</td>
<td>.298</td>
<td>-1.04</td>
<td>-0.66, 0.20</td>
</tr>
<tr>
<td>Auditory → SDhealth</td>
<td>0.03</td>
<td>0.02</td>
<td>0.13</td>
<td>.831</td>
<td>0.83</td>
<td>-0.23, 0.28</td>
</tr>
<tr>
<td>Auditory → SDmedical</td>
<td>-0.01</td>
<td>-0.003</td>
<td>0.18</td>
<td>.970</td>
<td>-0.04</td>
<td>-0.36, 0.35</td>
</tr>
<tr>
<td>RQ2bVisual → IPC</td>
<td>-0.69</td>
<td>-0.20</td>
<td>0.26</td>
<td>.008</td>
<td>-2.64</td>
<td>-1.21, -0.18</td>
</tr>
<tr>
<td>Visual → TPC</td>
<td>-0.45</td>
<td>-0.16</td>
<td>0.22</td>
<td>.041</td>
<td>-2.04</td>
<td>-0.89, -0.02</td>
</tr>
<tr>
<td>Visual → SDhealth</td>
<td>0.03</td>
<td>0.02</td>
<td>0.13</td>
<td>.796</td>
<td>0.26</td>
<td>-0.22, 0.28</td>
</tr>
<tr>
<td>Visual → SDmedical</td>
<td>0.12</td>
<td>0.04</td>
<td>0.18</td>
<td>.517</td>
<td>0.65</td>
<td>-0.24, 0.47</td>
</tr>
</tbody>
</table>

Note. b represents the unstandardised coefficient and β the standardised coefficient. IPC = information privacy concerns; TPC = territory privacy concerns; SDhealth = self-disclosure of health-related information; SDmedical = self-disclosure of medical information. We considered the results significant at (α / k = .05 / 2) p < .025 to correct for potential alpha inflation due to multiple testing (i.e., using a Bonferroni correction).

Furthermore, RQ1 asked which of the two dimensions of privacy concerns is the strongest predictor of self-disclosure. When analysed together in one model (for detailed results, see also Table 1), both information and territory privacy concerns ceased to be significantly related to self-disclosure of health-related information and medical information. An explanation could be that information and territory privacy concerns strongly covary (see bivariate analyses in the OSM: r = .87, p < .001). Based on the results of the hypothesis testing, one could say that both types of privacy concerns relate to self-disclosure, but neither of them is the strongest predictor. As it seems that these two privacy dimensions cannot maintain their relationship with self-disclosure when considered in one model, we opted for analysing them in two separate models instead of the one proposed model to test RQ2a and RQ2b. As these separate models addressed a common null hypothesis, we considered the results of these two separate models significant at (α / k = .05 / 2) p < .025 to correct for potential alpha inflation due to multiple testing (i.e., using a Bonferroni correction).
Effects of the Auditory Environment

We found no effects of auditory environmental factors (RQ2a). The doctor wearing headphones (vs. not) did not lead to lower information privacy concerns (β = -0.16, p = .035) or lower territory privacy concerns (β = -0.08, p = .298). There were also no direct effects of this auditory environmental factor on self-disclosure. Additional mediation analyses revealed that the auditory environment was also not related to more self-disclosure of health-related information (β = .05, p = .076) or self-disclosure of medical information (β = .09, p = .048) through decreased information privacy concerns. Moreover, no indirect effects were found through decreased territory privacy concerns (self-disclosure of health-related information: β = .02, p = .316; medical information: β = .04, p = .308). An overview of the direct and indirect effects can be reviewed in Table 1 and 2 respectively.

Effects of the Visual Environment

For the effects of the visual environment (RQ2b), results yielded significant effects on information privacy concerns. When a doctor was depicted showing the entire office in the background (vs. showing a white wall only), people reported lower information privacy concerns (β = -0.20, p = .008), but not lower territory privacy concerns (β = -0.16, p = .041). The visual environment also did not have a direct effect on self-disclosure. However, mediation analyses revealed that when the entire office of the doctor was in the background, this was associated with more self-disclosure of medical information through decreased information privacy concerns (β = .11, p = .010), but not through decreased territory privacy concerns (β = .09, p = .040). Regarding self-disclosure of health-related information, decreased levels of information privacy concerns because of showing the doctor’s background were not significantly related to more self-disclosure (β = .06, p = .034), nor were the decreased levels

Table 2. Indirect Relationships Between Auditory and Visual Environmental Factors, Information and Territory Privacy Concerns, and Self-Disclosure of Health-Related and Medical Information

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>β</th>
<th>SE</th>
<th>p-value</th>
<th>z-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ2a</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditory → IPC → SDhealth</td>
<td>0.08</td>
<td>.05</td>
<td>.05</td>
<td>.076</td>
<td>1.77</td>
<td>-0.01, 0.17</td>
</tr>
<tr>
<td>Auditory → IPC → SDmedical</td>
<td>0.23</td>
<td>.09</td>
<td>.12</td>
<td>.048</td>
<td>1.98</td>
<td>0.002, 0.46</td>
</tr>
<tr>
<td>Auditory → TPC → SDhealth</td>
<td>0.04</td>
<td>.02</td>
<td>.04</td>
<td>.316</td>
<td>1.00</td>
<td>-0.04, 0.12</td>
</tr>
<tr>
<td>Auditory → TPC → SDmedical</td>
<td>0.12</td>
<td>.04</td>
<td>.12</td>
<td>.308</td>
<td>1.02</td>
<td>-0.11, 0.34</td>
</tr>
<tr>
<td><strong>RQ2b</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual → IPC → SDhealth</td>
<td>0.10</td>
<td>.06</td>
<td>.05</td>
<td>.034</td>
<td>2.12</td>
<td>0.01, 0.20</td>
</tr>
<tr>
<td>Visual → IPC → SDmedical</td>
<td>0.29</td>
<td>.11</td>
<td>.11</td>
<td>.010</td>
<td>2.57</td>
<td>0.07, 0.51</td>
</tr>
<tr>
<td>Visual → TPC → SDhealth</td>
<td>0.08</td>
<td>.05</td>
<td>.05</td>
<td>.072</td>
<td>1.80</td>
<td>-0.01, 0.17</td>
</tr>
<tr>
<td>Visual → TPC → SDmedical</td>
<td>0.23</td>
<td>.09</td>
<td>.11</td>
<td>.040</td>
<td>2.06</td>
<td>0.01, 0.45</td>
</tr>
</tbody>
</table>

Note. b represents the unstandardised coefficient and β the standardised coefficient. IPC = information privacy concerns; TPC = territory privacy concerns; SDhealth = self-disclosure of health-related information; SDmedical = self-disclosure of medical information. We considered the results significant at (α / k = .05 / 2) p < .025 to correct for potential alpha inflation due to multiple testing (i.e., using a Bonferroni correction).
Table 3. Means (and Standard Deviations Within Parentheses) for all Experimental Conditions

<table>
<thead>
<tr>
<th></th>
<th>IPC</th>
<th>TPC</th>
<th>SD_{health}</th>
<th>SD_{medical}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>4.0 (1.7)</td>
<td>4.1 (1.6)</td>
<td>6.2 (0.9)</td>
<td>5.5 (1.4)</td>
</tr>
<tr>
<td>Auditory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headphones</td>
<td>3.7 (1.7)</td>
<td>4.0 (1.5)</td>
<td>6.2 (0.8)</td>
<td>5.6 (1.3)</td>
</tr>
<tr>
<td>No headphones</td>
<td>4.2 (1.7)</td>
<td>4.2 (1.7)</td>
<td>6.1 (0.9)</td>
<td>5.4 (1.5)</td>
</tr>
<tr>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entire office</td>
<td>3.6 (1.6)</td>
<td>3.8 (1.6)</td>
<td>6.2 (0.9)</td>
<td>5.7 (1.3)</td>
</tr>
<tr>
<td>No entire office</td>
<td>4.3 (1.7)</td>
<td>4.3 (1.6)</td>
<td>6.1 (0.8)</td>
<td>5.3 (1.5)</td>
</tr>
<tr>
<td>Auditory × Visual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headphones, entire office</td>
<td>3.3 (1.6)</td>
<td>3.7 (1.5)</td>
<td>6.3 (0.8)</td>
<td>6.0 (0.9)</td>
</tr>
<tr>
<td>Headphones, no entire office</td>
<td>4.1 (1.7)</td>
<td>4.2 (1.5)</td>
<td>6.1 (0.8)</td>
<td>5.3 (1.6)</td>
</tr>
<tr>
<td>No headphones, entire office</td>
<td>3.9 (1.6)</td>
<td>3.9 (1.7)</td>
<td>6.1 (1.0)</td>
<td>5.5 (1.5)</td>
</tr>
<tr>
<td>No headphones, no entire office</td>
<td>4.5 (1.7)</td>
<td>4.4 (1.7)</td>
<td>6.1 (0.9)</td>
<td>5.3 (1.4)</td>
</tr>
</tbody>
</table>

Note. IPC = information privacy concerns; TPC = territory privacy concerns; SD_{health} = self-disclosure of health-related information; SD_{medical} = self-disclosure of medical information.

of territory privacy ($\beta = .05, p = .072$). Table 1 and 2 present a complete overview of the direct and indirect effects between auditory and visual environmental factors, privacy concerns, and self-disclosure. In addition, Table 3 presents an overview of the privacy and self-disclosure means for the experimental conditions.

Discussion

With the fast development of video consultations, especially during covid-19, healthcare providers increasingly use VMC to provide care to their patients (e.g., Barsom et al., 2021). For this reason, it is crucial to identify and understand the factors that hinder self-disclosure, as patients’ revealing of health-related and medical information is a crucial prerequisite for effective medical care. The current study set out to investigate whether individuals’ willingness to disclose personal health-related and medical information during video consultation is affected by concerns about information and territory privacy. Furthermore, this study examined whether perceptions of the environment – specifically, auditory and visual environmental factors – affect privacy concerns and willingness to self-disclose. To do so, a vignette-based experiment was conducted among 163 participants who had prior experience visiting a doctor and using video-conferencing technology.

Key Findings

The first aim of our study was to understand how different types of privacy concerns (i.e., information versus territory privacy concerns) contribute to our understanding of self-disclosure in VMC. Our findings showed that if people are concerned about possible privacy loss regarding their information or their doctor’s physical territory, they are less willing to disclose their health-related and medical information to their doctor. With these results, we provide cumulative evidence for earlier work that suggests that people’ who experience privacy...
concerns in online medical settings are less likely to disclose personal information online (Abdelhamid et al., 2017; Bol & Antheunis, 2022). Moreover, we extend current knowledge by providing a more nuanced understanding of two types of privacy concerns that affect self-disclosure decisions. Territory privacy has gained relatively little attention compared to information privacy, both in terms of theorising about privacy and empirically assessing it (Allen, 2021; Leino-Kilpi et al., 2001). Our study showed that both information and territory privacy concerns can hamper self-disclosure, and should therefore be considered when studying privacy perceptions and behaviours in the context of VMC.

The second aim of our study was to understand if and to what extent people’s privacy concerns and willingness to self-disclose are affected by auditory and visual environmental factors. We demonstrated that the visual environment, as shown by the doctor’s office in the video background instead of a white wall only, decreased information privacy concerns and enhanced self-disclosure, whereas the auditory environment, as regulated by the doctor wearing headphones, did not affect privacy concerns and self-disclosure. Following Masur’s (2018) theory of situational privacy and self-disclosure, we could speculate that showing visual aspects of the online environment might have provided people with sufficient levels of privacy, which consequently enhanced their self-disclosure intentions. Alternatively, headphone use by the doctor only might not have elicited sufficient levels of privacy, as this does not necessarily guarantee that disclosed information is inaccessible to third parties. Even when a doctor uses headphones during a video consultation, information can still be half-overheard by others that are present in the doctor’s physical space (Groening, 2013). Similarly, patients can be concerned about being overheard in their own physical space, for example, by family members (Almathami et al., 2020). An alternative, methodological explanation could lie in how the auditory aspect was manipulated using a vignette-based approach. As the doctor’s headphone use was presented as a visual cue in the scenario, patients did not experience a real conversation and the consequences of doctor’s (not) wearing headphones (e.g., background noise). We should therefore not yet imply that headphone use is not useful to mitigate privacy concerns and enhance self-disclosure.

Theoretical Implications

Our study contributes to theory in several ways. First, our study contributes to privacy theory by offering empirical evidence for the role of different privacy dimensions in understanding self-disclosure behaviours in the context of VMC. Previous work on privacy has mainly focused on its informational aspect, such as data security and protection, and has provided insight into ensuring information privacy from a technical point of view (e.g., Valecha et al., 2021). However, VMC provides a unique setting in which both offline and online environments come together, suggesting that perceptions of both environments contribute to forming attitudes and behaviours. As such, merely focusing on the informational dimension of privacy could lead to an incomplete understanding of how privacy is perceived and self-disclosure occurs in VMC settings. In fact, many privacy theories argue that there are multiple dimensions to privacy (Altman, 1975; Burgoon, 1982; Westin, 1967). Yet, many researchers tend to focus on information privacy, rather than other dimensions such as territory privacy (Allen, 2021). With our study, we argue for the relevance of considering different privacy dimensions, but also demonstrate the challenges of conceptually and statistically teasing out these different dimensions. Despite our efforts to keep the operationalisation of information and territory
privacy concerns close to their theoretical conceptualisations, it seemed that these were not differently perceived (in the context of VMC specifically) and not uniquely predicting self-disclosure. Consequently, we call for future research efforts to better differentiate privacy concerns, which would enable us to explore the impact of different privacy dimensions across different contexts. For example, when studying privacy in the context of algorithmic targeting, one could differentiate between information privacy concerns (e.g., people’s worries about how their information is used to create personalised advertising) and decisional privacy concerns (e.g., people's worries about how their decisions are influenced or undermined by such advertising), to better understand the context-dependency of privacy perceptions and behaviours.

Second, by focusing on environmental factors, our study provides empirical evidence for theoretical notions that received little empirical attention so far, especially in the context of online medicine. By incorporating several tenets from Masur’s (2018) theory of situational privacy and self-disclosure, we show that perceptions of the environment can be affected by visual cues in the environment. Allowing people to observe the physical environment in which the interaction partner is in, helps people to reduce their concerns about information privacy, which in turn enhance their willingness to self-disclose. This might be explained by the notion of situation awareness, which refers to the perception and understanding of elements in an individual’s environment (Endsley et al., 2003). Visual cues facilitate situation awareness (Endsley, 1995), and such environmental aspects are expected to affect privacy perceptions and self-disclosure (Masur, 2018). Our results may suggest too that providing insight into the interaction partner’s physical environment through showing the various visual aspects could be an effective strategy for people to acquire sufficient levels of privacy to feel comfortable to self-disclose. Manipulating the auditory environment through the doctor’s use of headphones did not appear to be an effective strategy in this regard, implying that not all elements of the physical environment might contribute equally to privacy perceptions and self-disclosure behaviours. As Masur’s (2018) theory is relatively new, there is a need for more empirical research that aims to understand which environmental factors play a role in which specific situations.

Practice Implications

Our study also presents several implications for practice, specifically regarding relevant insights for current guidelines and policy recommendations on video consultations. First, our results suggest that visual cues in the doctor’s video background are important for people to feel less concerned about their information privacy and more willing to disclose their health-related and medical information. Although several clinical guidelines advise clinicians to use professional backgrounds that either showcase minimal visual cues to create ‘meaningful’ environments (Elliot et al., 2022) or do not display any physical objects (Onor & Misan, 2005), our study implies that overly minimal backgrounds may increase privacy concerns and decrease self-disclosure. Thus, there seems to be a trade-off between creating professional backgrounds with minimal visual cues and enhancing feelings of privacy by showcasing various visual cues. To achieve both goals, doctors can perhaps show patients their whole office, thus decreasing their privacy concerns, but at the same time maintain the professional look of the office in the background (e.g., excluding personal things and keeping the environment neat).
Clinical guidelines have also suggested clinicians to use headphones during video consultations (Meuter et al., 2021; Smith & Badowski, 2021). However, our study provides insights into the potential ineffectiveness of this suggestion in terms of accommodating patients’ perceived privacy and willingness to self-disclose. Nonetheless, more research is needed to examine headphone use from a patient’s side to grasp the full picture regarding the (in)effectiveness of mitigating privacy-related issues by headphone usage during online medical visits. Moreover, more research in real clinical settings is needed to replicate the findings of the current study to be able to provide convincing recommendations for clinical practice regarding auditory and visual aspects of video consultations.

Limitations and Future Research Suggestions

There are several study limitations that could be addressed in future research. First, our sample included primarily young people, as almost 72 percent of the sample were in their twenties, and 63 percent of the sample identified as female. Age and gender have been associated with self-disclosure in previous research. While men generally tend to reveal less information about themselves than women (Dindia, 2002), age-related differences in self-disclosure highly depend on context. For example, in clinical contexts, young people and men tend to report less health complaints than older people and women (Eriksen et al., 1998), which could mean that the latter groups may be more willing to share information with doctors than the former ones. Moreover, as healthcare contexts and health conditions can be extremely varied, both in terms of setting and use of VMC, privacy perceptions and self-disclosure decisions are very likely to depend on specific characteristics of clinical settings (e.g., urgency of care) and consultation content (e.g., information sensitivity). The results of this study may therefore not be generalisable to people of all ages and genders and might not transfer to specific healthcare settings. Furthermore, we do not know whether any of our participants suffered from chronic conditions or had prior experience with video consultations with a doctor, which might have affected their interpretation of and responses to the study’s vignette. Future research could aim to replicate our findings among specific patient populations from specific health-related contexts.

Second, despite the advantages of vignette-based designs, they inherently lack ecological validity and can never completely mirror real-life dynamics and behaviours (Hughes & Huby, 2002). As such, privacy concerns and self-disclosure intentions reported in our study may not reflect actual perceptions and behaviours in online medical contexts. As such, our vignette-based approach might have led to under- or overestimations of privacy concerns and self-disclosure intentions. To see if our findings hold under more natural circumstances, future research could try to replicate the findings in real healthcare settings that enable us to make direct observations of individual behaviours.

Moreover, in our study, privacy concerns were assessed only in relation to possible privacy loss occurring in the doctor’s physical environment and whether manipulating auditory and visual aspects of this environment could mitigate such concerns. However, information and territory privacy concerns can also occur through unwanted surveillance of or access to the physical environment of the patient (Almathami et al., 2020). Research has shown that people use various privacy-preserving techniques to maintain their territory privacy, for example by blurring one’s video background (Herder & Gullit, 2022; Sabra et al., 2022). Furthermore, the impact of environmental factors on privacy concerns and self-disclosure in video consultations...
might be different for other consultation types, such as telephone consultations, but similarities might exist too. For example, information privacy concerns might apply similarly to telephone consultations (e.g., being equally concerned that information is overheard by others), whereas territory privacy concerns might be different (e.g., being less concerned about someone entering the doctor’s office). Therefore, future research could examine the effects of manipulating one’s own physical environment on privacy concerns and self-disclosure and how the impact of environmental factors differs across consultation types.

To conclude, our study suggests that changing the doctor’s video background could be an effective way of manipulating online environments to achieve desired levels of privacy. However, as the environment, and more broadly a situation (see Masur, 2018, p. 136 for a definition and discussion), is made up of many different personal (e.g., goals and motivations) and environmental (e.g., people and objects) factors that may differ across situations, we call for more research into the various environmental factors to explain privacy perceptions and behaviours. For example, one could focus on different clinical settings in which patients would be more or less motivated to self-disclose (e.g., intimate vs. non-intimate situations) or physical environments include more or less persons (e.g., one vs. multiple doctors). Nonetheless, our study provides new fundamental and practical knowledge on how the environment surrounding medical VMC can be regulated to improve doctor-patient interactions to enhance patient well-being and digitised medical care.

Notes
1. This manuscript features online supplementary material (OSM), which can be accessed via: https://osf.io/ntr7v/?view_only=bea09042cd8644faa302fb2f0c1673d7.
2. All measurement items for the latent constructs (including the manipulation check items) as well as their factor validity and reliability statistics are included in Appendix B of the OSM. Descriptions of demographic (i.e., age, gender, education, nationality) and background variables (i.e., how often participants visited their doctor, participants’ experience with video-conferencing tools) are also included in this appendix.

Data Availability Statement
This manuscript features online supplementary material (OSM), which can be viewed online via the open science framework (OSF): https://osf.io/ntr7v/?view_only=bea09042cd8644faa302fb2f0c1673d7. The OSM includes an overview of all measurement items, statistical analyses (including power analysis, confirmatory factor analyses, and structural equation models), stimulus material, and an anonymised, minimised version of the dataset.

Funding
There was no funding for this study.
Conflict of Interest

There are no conflicts of interest to report.

Ethical Approval

The study was approved by the ethical review board of the Tilburg School of Humanities and Digital Sciences (reference number: REDC # 2019/35ab).

References


**Author Contributions**

Conceptualisation (main idea, theory): Tatiana Gromova
Funding acquisition: Not applicable
Project administration: Nadine Bol & Tatiana Gromova
Methodology (design, operationalisation): Nadine Bol, Tatiana Gromova, & Marjolijn Antheunis
Data collection: Nadine Bol, Tatiana Gromova, & Kim Tenfelde
Data analysis: Nadine Bol
Writing – original draft: Nadine Bol & Tatiana Gromova
Writing – review & editing: Nadine Bol, Tatiana Gromova, Kim Tenfelde, & Marjolijn Antheunis

**Author biographies**

**Nadine Bol** (PhD, University of Amsterdam) is assistant professor of health communication in the department of Communication and Cognition at Tilburg University. Her research expertise lies at the intersection of digital technologies, health communication, and vulnerability, centering on how digital health technologies impact vulnerable populations and create (new) digital inequalities.

**Tatiana Gromova** is a master’s graduate of Business Communication and Digital Media at Tilburg University. In her thesis research, she focused on the topic of patient privacy concerns during doctor-patient communication. Her area of expertise covers digital marketing, webcare, digital health communication, and social media analytics.

**Kim Tenfelde** is a PhD student in the department of Communication and Cognition at Tilburg University. In her research, she focuses on health communication, doctor-patient communication, and digital health technologies. She specializes in using qualitative research methods to gain a deeper understanding of the experiences of low socioeconomic status patients in the context of health communication.
Marjolijn Antheunis (PhD, University of Amsterdam) is a full professor of communication and technology in the department of Communication and Cognition at Tilburg University. Her research expertise is on the impact of digital communication technologies on interpersonal communication in context of health. She, for example, researches the impact of video-mediated communication technologies on doctor-patient communication.