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The video consultation as a preoperative measure in inpatient care: A qualitative study of the perspectives of experts in the German healthcare system

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Abstract

Background

The use of telemedicine, particularly video consultations, has gained significant importance in recent years, especially during the COVID-19 pandemic. While extensive research exists on patient perspectives and outcomes such as satisfaction, cost efficiency, and quality of care, the perspective of healthcare providers remains insufficiently explored. This is particularly true for preoperative consultations in inpatient settings. Understanding the experiences and opinions of healthcare providers is essential for the successful implementation and further development of digital communication tools.

Objective

This study aims to explore the extent to which video consultations can replace or complement traditional preoperative consultations in inpatient facilities in Germany. It focuses on identifying opportunities, challenges, and requirements for successful implementation from the perspective of healthcare providers.

Design/Methods

A qualitative research design will be employed. Data will be collected through structured interviews with healthcare professionals working in inpatient facilities in Germany. The sample will include physicians and management-level staff with relevant experience in telemedicine and preoperative consultations. Data analysis will be conducted using Kuckartz's qualitative content analysis method, supported by MAXQDA software. The recruitment process will follow a criterion-based sampling approach to ensure diverse perspectives.

Discussion

This study will provide valuable insights into the views and experiences of healthcare providers regarding video consultations for preoperative purposes. The findings aim to inform strategies for expanding the use of telemedicine in inpatient settings while addressing potential barriers such as data protection concerns and technical challenges. By focusing on provider perspectives, this research contributes to a holistic understanding of telemedicine's role in modern healthcare delivery.

Registration

DRKS-ID: DRKS00036628 Registration

Troubleshooting

Background

1 Video consultations have already been established as a routine communication tool in the
provision of healthcare services. Their use is particularly reported in specialties such as diabetology, pediatrics, clinical oncology, and psychiatry. However, their adoption in primary care remains limited (Thiyagarajan et al., 2020). Since the onset of the COVID-19 pandemic, video consultations have become increasingly prevalent in outpatient care (Wienhold, 2021). Similarly, there has been a noticeable rise in the use of telecommunication in inpatient settings. This has enabled healthcare providers to work from home and dedicate more time to research activities. Telemedicine interventions are also being used in education, allowing healthcare providers to participate in online training and continuing education programs. Furthermore, hospitals have developed concepts for modern patient care (Leitsmann et al., 2021).
Initial studies suggest that video consultations can be promising clinical measures from the patient's perspective (Thiyagarajan et al., 2020). Compared to preoperative research, more references can be found for postoperative studies (Asiri et al., 2018). Regarding patient satisfaction and the utilization of healthcare resources, virtual communication tools between doctors and patients perform just as well as traditional in-person consultations (Lua-Mailland et al.,2024). The same applies to cost efficiency, follow-up after interventions (Asiri et al., 2018), and the average waiting time patients must spend (Haaft et al., 2024). In preoperative research, however, the focus of investigations primarily lies on patients and their outcomes. A systematic review by Zhang et al., published during the second year of the COVID-19 pandemic, revealed high patient satisfaction with virtual doctor-patient consultations before surgery. Additionally, cost savings were noted, with no differences observed in the number of surgery cancellations (Zhang et al., 2021). A needs assessment highlighted patients' acceptance of virtual communication tools for preoperative purposes (Follmann et al., 2024).
Research in secondary care has shown that implementing video consultations is highly complex and depends on the specific context of the healthcare field. Questions regarding acceptance among healthcare providers and the integration of video consultations into inpatient care remain unanswered by current research (Thiyagarajan et al., 2020). This study focuses on exploring the perspectives of healthcare providers in inpatient facilities in Germany.

2 **Project goals**
Telemedicine has become increasingly important in recent years, not least due to the Covid-19 pandemic. While the patient perspective and the effects on patient satisfaction, cost efficiency and quality of care, there is already the perspective of service providers is still insufficient in many areas. This applies in particular to the pre-operative information discussion in inpatient care. The direct questioning at the

service provider level offers the advantage of gaining authentic insights into their views, experiencesand possible challenges when using video consultations. This perspective is essential and active participation by these professional groups is crucial for the successful implementation and further development of digital communication solutions.

A comprehensive presentation of the views, attitudes and experiences with the video consultation of the target group. Using the content analysis according to Kuckartz is used to assess whether the video consultation is suitable for preoperative planning. Furthermore, it is analysed whether and how well a preoperative assessment via video consultations works in comparison to face-to-face consultations. Furthermore opportunities and risks of video consultations in terms of time and resource savings, sustainability resources, physician satisfaction or technical/communicative hurdles are weighed up. In addition, an analysis of the effects on organisational processes is carried out. This includes analysing how the use of video consultation on efficiency and organisation within the clinic. This research work serves as a theoretical basis for the development of strategies, how the expansion of technical utilisation in inpatient facilities can succeed.

Design/Methods

3 **Design**

A qualitative approach is appropriate for this master's thesis. The data collection will be collected by means of guideline-based, fully structured interviews in order to the perspectives of the experts in the German healthcare system. For the systematic evaluation of the collected data, the qualitative content analysis according to Kuckartz. This makes it possible to extract and categorise central themes and patterns from the interviews and thus analyse the experts' perspectives. For the transcription and coding, the software MAXQDA software will be used for transcription and coding (Kuckartz, 2012).

4 **Methods**

In the course of the qualitative research, fully structured expert interviews are conducted with the participants. Focus groups were not used, as it is assumed that the experts have an individual schedule in their daily hospital routine. Thus can better plan and coordinate their individual appointments. In addition
the person conducting the study can focus more on subjectivity in the individual interviews in order to better reflect the expertise of the study participants. The interviews are conducted digitally via Webex. The advantages of digital video interviews are that they can be conducted regardless of location and accessibility can be ensured. This results in the possibility of to gain an extended sample. There are no travelling times and costs, and conditions for the participants are more favourable. In addition, the potential openness of the participants when they are in their familiar

home environment. It is also easier and more flexible to make appointments (Ristau et al., 2021). The Webex digital meeting platform fulfils data protection requirements and runs securely via the servers of the University of Lübeck. The recording of this will be made with a digital recording device. In the course of the interview process it is possible that an adjustment/extension/addition to the interview guide will be made.

5 **Procedure**

The interviews are conducted and voice-recorded by the person conducting the study. As things stand at present, each interview is scheduled to last 30-45 minutes. In the interviews, the framework areas of the research will be discussed: the experiences to date with the video consultation and the opportunities and challenges that the video consultation brings with it and what impact it has on the course of action of inpatient facilities in preoperative care. In addition, the requirements for a successful introduction of telematics will be analysed.

6 **Eligibilty criteria**

The inclusion and exclusion criteria can be found in Table 1.

	A	B	C
	Domain	**Inclusion criteria**	**Exclusion criteria**
	all experts	- Active/passive use, experience, decision-making competence in the field of telemedical applications - 3-5 years of professional experience - Employment in an inpatient facility in Germany	- Lack of German language skills - Lack of time availability - Conflicts of interest due to economic participation in providers of video consultation hours - unwillingness to participate
	doctors	- Completed medical studies - Experience with preoperative information consultations	- Outpatient doctor - Doctor of science and research without patient contact
	personnel at management-level	- Business management background, Experience in the economic	- Focus on administrative activities - No responsibility for strategic decisions

Table 1: In- and exclusion criteria.

7 **Number of study participants**

The total number of participants is estimated at approximately 8 experts. Two interviews were conducted per expert group so that a direct comparison of the participants can be made. The expert groups result from the recruitment process.

8 **Recruitment measures and materials**

Study participants are recruited directly via the experts. This approach ensures that the participants bring expertise with them and can provide practical insights. It also ensures that the people recruited persons can be contacted again if no response can be achieved or if those cannot be achieved or those experts can refer the study team to other experts ('snowball principle'). By considering several expert perspectives, the research perspectives gives the research a holistic approach, which ensures the quality of the data.
The recruitment process is as follows:
1) Potential experts are contacted during the planning phase.
2) The experts receive detailed information by e-mail in the form of the study information including the data protection declaration and the study consent form.
3) Potential participants have the opportunity to contact the study organiser directly if they have any questions in advance.
4) After receiving the signed study consent, an appointment is made for the interview.

The recruitment process starts after the positive ethics vote and registration and should be completed after four weeks.

9 **Information and consent process**

The experts receive comprehensive study information that explains the background and the objective, the data collection methods and the course of the research. A complete data protection declaration and a declaration of consent, which document voluntary participation and data processing modalities. Participants have the opportunity to ask questions and obtain comprehensive information. Consent is given in writing before the start of data collection, whereby the principles of voluntariness and transparency take centre stage. The process ensures that participants are fully informed and protection of participants through comprehensive advance information.

Analysis/Evaluation

10 **Risk-benefit-analysis**

A risk-benefit analysis for the research project with expert interviews in the field of telemedicine can be summarised as follows:

Benefit:

1) Knowledge gain: The study provides deeper insights into the practice and challenges of telemedicine from an expert perspective.

2) Improvement of patient care: The knowledge gained can contribute to the optimisation of telemedicine services and thus improve the quality of care.

3) Identification of opportunities and barriers: The expert interviews can be used to specific advantages and disadvantages of video consultations in inpatient care, which is valuable for future developments.

Risk:

1) Data protection and confidentiality: When conducting interviews on sensitive health topics, there is a risk of unintentional disclosure of confidential information.

2) Distortion of the results: The subjective experiences and opinions of the participants could lead to a one-sided portrayal of telemedicine.

3) Psychological stress: discussions about challenging aspects of telemedicine could lead to emotional stress for the participants. This aspect is countered by the criteria-based sampling and the inclusion of at least two experts per subgroup.

Various strategies are implemented to minimise the identified risks. One key aspect is the implementation of strict data protection protocols to ensure the confidentiality and protection of sensitive information. In addition great importance is attached to providing participants with detailed information about the purpose and methods of the study, which enables informed consent and strengthens trust in the research process. In order to take into account the well-being of the participants, the interview process is designed to be flexible. This includes the possibility of taking breaks or to interrupt the interview at any time if there are signs of discomfort, which minimises the psychological strain on the participants. These combined measures ensure an ethically responsible and participant-orientated research approach.

11 **Evaluation**

The potential findings and social benefits of the study outweigh the identified risks provided that appropriate protective measures are taken. The research promises valuable insights into the practice of telemedicine, which can contribute to the improvement of preoperative inpatient care.

12 **Criteria for termination of individual participants**

1) Voluntary withdrawal: participants can withdraw at any time without giving a reason incurring any disadvantages.
2) Medical reasons: Termination may occur if further participation is no longer medically justifiable.
3) Safety concerns: If serious adverse events occur, participation may be terminated for safety reasons.

Criteria for termination of the entire study

1) Ethical reasons: If new findings question the ethical justifiability of the study.

2) Recruitment problems: If not enough participants can be recruited for a statistically meaningful analysis.
3) Financial or logistical reasons: If the continuation of the study is no longer possible for financial or organisational reasons.
4) Achievement of the study objective: If the primary endpoints of the study are reached prematurely and a continuation scientific benefit.

Statements and Declarations

13 **Data processing and legal basis**

In this research, the person conducting the study is responsible for data processing. The legal basis for processing is personal consent (Art. 6 para. 1 lit. a, Art. 9 para. 2 lit. a GDPR). The data will be treated confidentially at all times and is collected exclusively for the purpose of the study described above and will only be used for this purpose. The data will only be collected by the person conducting the study and will be pseudonymized and stored on a protected drive. Only the project team has access to this data. The data is transcribed and coded using the MAXQDA software, via which the data records are stored on online servers in Europe, which guarantee data security through GDPR compliance. The data is only used for speech recognition, is not used for any other purpose and is not shared with third parties. After processing, the data is deleted from said online servers after seven days. The pseudonymised data will be deleted no later than 10 years after the end of the study.

14 **Data protection officer**

x-tention Informationstechnologie GmbH, Karl-Drais-Str. 4e, 86167 Augsburg, Germany,
E-mail: datenschutz@uni-luebeck.de

15 **Dissemination of the results**

We expect to submit the results in the form of a manuscript to a peer-reviewed journal by the end of 2025.

16 **Study team**

EM is the Principal Investigator. She is scientifically supervised by PR and AS, who are available for queries and methodological questions. The authors EM and PR have expertise in the field of health services research and qualitative research. The authors EM and AS have expertise in the field of telemedicine.

17 **Authors' contribution**

This project is part of the first author's master thesis in health care sciences. EM conducted the conceptualisation and design of the study, drafted the manuscript and revised the content based on feedback. PR supervised the conceptualisation and design of the study. PR and AS provided critical revisions of the drafts. All authors approved the final version of the manuscript. EM is responsible for the integrity of this work as a whole.

18 **Competing Interests**
The authors declare no conflicts of interest.

19 **Funding**
No funding or third-party money will be spent on this project.

20 **Ethical Approval**
According to German law, an ethical clearing is required. The ethics committee of the university of Lübeck returned a positive clearing. File number: 2025-125

21 **Registration**
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