Signa Vitae

ORIGINAL RESEARCH

When health professionals and patients collaborate in emergency departments: a qualitative chart review

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Abstract

Background: In shared decision making, health professionals and patients collaborate inevaluating different available management options for medical decisions. Apart from single trials on medical conditions like nontraumatic chest pain, more extensive projects implementing shared decision making in emergency medicine are absent. Among numerous implementation barriers, the concept of clinical equipoise appears blurry and arbitrary, demanding an equidistance between available management options. Consequently, this article aims to inform future implementation projects for shared decision making in emergency departments and update the concept of clinical equipoise. **Methods**: Following the Standards for Reporting Qualitative Research (SRQR) and an interpretive approach, retrospective data were extracted from 366 medical cases within a German emergency department. Two raters assessed the feasibility of the medical decisions in those patients towards the perceived feasibility for shared decision making. Afterward, results were thematically grouped. **Results**: Factors related to patients, health professionals and the healthcare context contributed to feasibility. Furthermore, three repeating situations were identified as potentially feasible for shared decision making in emergency departments: (a) stable patients holding unclear risks of deterioration, (b) patients in which different yet justifiable treatment options exist and (c) aligning patients' health status with the extent of further medical actions. To increase trustworthiness in the underlying methodologies, a multidisciplinary research team was recruited, data transparency was ensured, and results were compared to existing evidence. **Conclusions**: Based on the results, this article extends the framework for shared decision making in emergency medicine and updates the concept of clinical equipoise. Due to its qualitative, interpretive and retrospective nature, our conclusions should undergo context-sensitive interpretation. The study was registered before conduction and its dataset is available in the Open Science Framework, DOI: 10.17605/OSF.IO/CYZ5G.

Keywords

Patient participation; Communication; Ethics; Equipoise; Artificial intelligence; Implementation

1. Introduction

1.1 Problem formulation

Engaging emergency department (ED) patients in their medical decisions can seem overly challenging compared to other medical specialties. Barriers around the patient, health professional and system level contribute to this perception [1]. Yet, there are publications on attempts to have ED patients participate in the decision-making process. These attempts focus on simple interventions (information material called decision aids) [2] and are limited to certain patient groups—predominantly those presenting with nontraumatic chest pain and rather low-risk profiles [3]. Interestingly, these randomized clinical trials (RCTs) point toward a possible reduction of unnecessary diagnostic tests while not affecting patient safety [1].

Outside emergency medicine, the literature on collaborative medical decision making between patients and health personnel has increased drastically over the past years [2]. As for 2025, the term Shared decision making (SDM) summarizes scientifically validated methods to fuse patients and health professionals as collaborators for medical decisions [4]. While health professionals carry knowledge on available options alongside their associated risks and benefits, patients contribute their preferences and needs [4]. Together, both sides

reach the option that fits the patient most [4]. SDM has been evaluated in different scenarios using complex interventions targeting hospitals with high patient volumes [5]. Such broad efforts are missing in emergency medicine (EM), while the implications for SDM in and outside EM are equally imminent. SDM fosters patient autonomy [6] and enables patients to make preference-sensitive decisions [7]. Both aspects contribute to healthcare guided by ethical aspects [6, 7]. Furthermore, as suggested by the few existing studies in EM, SDM could also improve aspects of clinical care, like safely reducing overdiagnostics [3]. In conclusion, larger implementation projects for SDM in EDs should be deployed in the future. For such projects, implementation barriers need to be addressed. Among the previously mentioned barriers [1], one is particularly intriguing: the concept of clinical equipoise. It is meant to underline an equidistance between available management options for a medical decision [8]. In a recent systematic review, clinical equipoise is described as one key factor emergency physicians utilize when estimating patients' suitability for SDM [8]. Yet, clinical equipoise can hardly be defined in a definite number of thresholds—does it end at a 5% difference in a patient's risk of adverse event or at 10% when two available management options are compared? On the other side, EM greatly relies on such thresholds when making decisions on diagnostics or disposition through established risk scores [9]. Furthermore, in existing interview studies on EM-physicians, they claim a vast array of different situations in which they deem SDM as an appropriate method of care [10]. Lastly, EM frequently exposes patients and health professionals towards time-sensitive decisions with varying degrees of uncertainty—because evidence is missing, not available, or it cannot be applied to that specific patient [11]. At the same time, decisions in emergency departments might unfold drastic consequences in patients' lives.

Following both the implications for more extensive utilization of SDM in EDs and the barrier imposed by clinical equipoise, this qualitative article longs to replace the blurry concept of clinical equipoise for SDM in EM through a differentiated and practical view. The qualitative approach seemed reasonable as medicine in general and SDM specifically hold psychological and social concepts that—again—cannot finally be expressed in absolute numbers. They are rather depicted in consensus papers, editorials [12] or frameworks [13].

The first research question was derived from the observation that clinical equipoise is a term used to describe health professionals' estimation whether their patient is suitable for participation. The second research question originated from the highlighted implications for future attempts of more extensive and complex SDM-implementation in EDs.

1.2 Research questions

First research question: What factors influence the perceived feasibility of SDM for medical decisions in ED patients?

Second research question: Which medical decisions in ED patients could be addressed through SDM?

2. Materials and methods

2.1 Qualitative approach and research paradigm

Several thoughts guided the methodological approach. First, the medical journey of each patient is different and unique. Emergency medicine aims to streamline patients by sorting their symptoms and risk profiles into fixed categories [9]. While those categories are meant to fasten safe patient flows and meet medicolegal regulations, they could also reduce the complexity emergency patients hold. As a result, vulnerable patients [14] or those with atypical presentations of time-sensitive pathologies could be at increased risk of misdiagnosis. Furthermore, patients' individual needs might not be considered in an appropriate dimension [15].

Second, the estimation as for what situations in EDs are feasible for SDM varies between clinicians in the existing interview studies [10].

Third, medicine in general and SDM in particular contain numerous psychological and social ideas and concepts. Some of them cannot be expressed in clearly defined formulas or statistics. Here, logic models or reasoning are utilized to explain effects and outcomes [13, 16].

Lastly, the existing qualitative data on SDM in EM predominantly consists of interview studies [15, 17].

Following these thoughts, a qualitative chart review appeared reasonable to respect each medical case individually. Furthermore, the phenomenon around the perceived appropriateness for SDM seemed to be tangible through a phenomenographic approach within the interpretivist research paradigm [18, 19]. The validated SRQR guidelines were installed as the proper reporting tool for this qualitative study [20].

2.2 Researcher characteristics and reflexivity

Researchers with different backgrounds participated in this study to meet the intersections between medicine and psychology that characterize SDM.

FW, JCL, SH and MN work as emergency physicians in the interdisciplinary Department of Emergency Medicine that is situated within the University Hospital in Jena, Germany. They hold between three and thirty years of work experience as physicians in the German health system.

DL is now an internal medicine resident and former medical student on rotation to the Department of Emergency Medicine at University Hospital Jena.

SP and BS were invited as long-standing psychologists due to their research in health communication and qualitative data. Lastly, FG and FS joined as long-term researchers in SDM. They lead the National Competency Center for Shared Decision Making in Kiel, where FW wrote his doctoral thesis. At the time of data extraction and processing, FW held three years of clinical experience in the department as well as five years of experience in SDM research. In addition, DL was appointed for data extraction after completion of this training (four months) in the emergency department. The extracted and processed data was afterward discussed by all researchers.

2.3 Context

The retrospective patient sample originates from the Department of Emergency Medicine at the University Hospital Jena. This academic tertiary-care center treats around 36,000 adult patients annually, including conditions from all medical specialties—excluding pregnancy-related issues and underaged patients. As for 2025, about 30 physicians and 50 nurses, as well as paramedics, work in the department. Of these 30 physicians, 12 are residents working mainly in the department, another 8 are on rotation from other departments and 10 are senior physicians. There are 14 telemetry-supported treatment bays and a separate area for all patients who walk to the examination rooms themselves and hold no indication for telemetry. Every patient has one associated physician and a nurse. After assessment (laboratory, ultrasound, computed tomography, magnetic resonance imaging, consults) and treatment, patients are discharged or admitted to wards inside the hospital. There is also an associated observation unit within the ED that can hold 4 to 10 telemetry bays—depending on the workload. The unit is run entirely by staff from within the department.

To outline the term SDM, the manifold definitions in existing literature were appraised. Up to this date, there is no final, definite description of what SDM includes. Consequently, existing studies deploy different concepts. On the other hand, emergency medicine depicts a medical specialty that requires robust, reliable and reproducible concepts. Based on these two thoughts, all researchers consented to the following concept for SDM:

● SDM intends to connect patients and medical staff when discussing medical decisions in scenarios that offer more than one reasonable choice. While patients state their preferences and life situations, health professionals offer information on the available management options, including benefits and risks. SDM can be offered to any patient who has the mental capacity to evaluate the decision and available options. In case of reduced mental capacity, relatives may take over the decision process.

● In SDM, a medical decision must be made with more than one reasonable option. Reasonable means that they are justifiable from a medical and ethical standpoint, rather than holding equivalent chances of recovery.

● All available options must be ethically reasonable, respecting the patient's circumstances.

● Patients' preferences can contribute to the decision-making process.

This consent predominantly matches with modern concepts for SDM in [1] and outside [1, 13] emergency medicine. For instance, Clayman *et al.* [13] divide the course of SDM discussions into six steps:

1. The consultation goal is defined.

2. The patient's need for participation is pointed out.

3. All available management options and their (dis-)advantages are described—including active surveillance.

4. The patient's preferences and needs are explored.

5. A decision is made or deferred.

6. The decision is transferred into practice.

2.4 Sampling strategy and units of study

All consecutive patients from one week in the ED at University Hospital Jena were considered for extraction. To avoid an overrepresentation of coronavirus-related cases, the week was selected onwards from when the COVID-19 pandemic in Germany had ended. An appropriate sample size calculation was hardly possible due to the qualitative study approach. Instead, it was decided to reach thematic saturation reported by both raters.

The week chosen for data extraction yielded 619 cases in the ED. Of these, 253 met at least one reason for exclusion. Thus, 366 cases were extracted with a focus on their medical decisions as the main unit of study.

2.5 Ethical issues about human subjects and data protection

The ethics committee at the University Hospital Jena approved the conduct of this study (Registry number 2023-2876-Daten). As patients were not directly involved, there was no harm to be expected. Data safety was ensured through local data extraction inside the department combined with data anonymization at the moment of extraction. All files were stored inside the department on password-protected computers and the week chosen for data extraction is not apparent afterwards.

2.6 Data collection methods, instruments and technologies

Two researchers (FW and DL) extracted retrospective data on patients using predefined forms. The extracted cases were grouped by day. While the study's conception began in January 2023, data extraction was performed in September 2023. Afterward, data processing and analysis were conducted in October and November 2023.

Exclusion criteria:

● No documentation available/insufficient documentation.

● Work accidents (special insurance regulation in Germany—covered by employers' liability insurance).

● Pregnant or underaged (<18 years old) patients because they are not treated in the department and their medical decisions hold additional ethical and legal challenges.

● Patients asked to visit the department for planned procedures like blood samples or COVID-19 tests.

● Immediate transfers to other medical specialties through the ED due to preclinical/outpatient diagnosis (like acute myocardial infarctions for immediate percutaneous coronary interventions).

● Patients that are clinically decompensated—will be included if they are stabilized in the ED or relatives were available for decision making. Reasons for clinical decompensation include:

○ Severe, disabling symptoms or critical situations/pathologies that require immediate, clearly superior intervention (taking patients' age and comorbidities into account).

○ Reduced awareness or cognitive capacity.

For data extraction, forms were developed by the research team, pilot-tested by two researchers (FW and DL) on a train-

ing set of twenty patients and afterwards refined and finalized in the research group (see **Supplementary material**). They were intended to gather data on the patients' emergency department stay, including events and procedures during the diagnostic, treatment and disposition pathway. The same two researchers then extracted information on all patients independently by appraising their discharge letters and comparing results afterwards. A third researcher (FS) was available for discrepancies. The predefined forms received no further editing during data extraction.

2.7 Units of study

The week chosen for data extraction yielded 619 cases in the ED. Of these, 253 met at least one reason for exclusion. Thus, 366 cases were extracted with a focus on their medical decisions as the main unit of study.

2.8 Data processing and analysis

The extracted cases were further processed through a standardized form (see **Supplementary material**) that was again tested by two researchers (FW and DL) on a training set of twenty patients. They worked independently first and then compared results afterward. Again, a third researcher (FS) was available to check for discrepancies. These forms aimed to engage the researchers in rating each patient's case on how likely SDM could have been utilized for diagnostic, treatment and disposition decisions. The final rating scale was as follows:

● SDM rather feasible when two reasonable management options exist and the choice could be influenced by the patient's preferences.

● SDM rather not feasible when the decision is more related to medical aspects that the patient can hardly evaluate and that are not related to personal preferences (like ordering blood cultures for infection). Or, if there is one superior management option (start anticoagulation in young, otherwise healthy patient with acute pulmonary embolism).

● SDM indication cannot be rated—if the information in the discharge letter is insufficient for rating.

Also, it was coded what kind of diagnosis patients had received:

● Unclear diagnosis when the patient was discharged with the leading symptom(s) coded as the final diagnosis or the final diagnosis contained the word unclear.

● Clear diagnosis when the patient received a specific diagnosis according to the International Classification of Diseases, Tenth Revision, Clinical modification also accounted for when the diagnosis was coded as suspected.

● No diagnosis when the letter contained no diagnosis.

All extracted and processed cases were visualized in the templates that had been designed in advance. They can be found in the provided data set [21]. To answer the first research question, both raters (FW and DL) noted factors they used to rate decisions' appropriateness for SDM. To answer the second research question, all decisions rated as rather feasible and rather not feasible for SDM were critically appraised, searching for recurrent themes. In addition to both research questions, raters highlighted all patients in which a form of collaborative approach had been noted in the discharge letter.

2.9 Techniques to enhance trustworthiness

First, to avoid fixation and thematic restriction, the research team consisted of members with different occupational backgrounds (psychological and medical; qualitative and quantitative research; primary and secondary SDM background). Second, the research team met regularly to reevaluate the methods used and themes identified—especially at important milestones during the project (protocol completion, beginning of data extraction, end of data analysis, revision of first manuscript draft). Third, data were extracted and processed by two researchers, with a third researcher available to moderate discrepancies. Fourth, the project was registered transparently before conduction through a study protocol. Fifth, results were compared to existing evidence. Sixth, overgeneralization and self-confirmation bias were respected as two frequent limitations throughout the conduction and in the discussion. Last, all data are provided transparently in an open data repository [21] alongside modifications made to the initial study protocol (see **Supplementary material**).

3. Results

3.1 Synthesis and interpretation

Of 619 identified cases, 253 initially met the exclusion criteria. Thus, data on 366 cases were extracted. The median age for all extracted patients was 60.56 years (Table 1). In the subsequent data processing, both researchers reported thematic saturation after the first set of 53 patients. To ensure trustworthiness in that saturation, another 5 cases from each day were selected through a random number generator and processed. Thus, 83 cases were processed in total. The median age of processed patients was 57.74 years (Table 1). Clear medical diagnoses were found in 67, unclear diagnoses in 13 and no diagnosis in 3 patients. In all 83 patients, the diagnostic, treatment and disposition decisions were rated towards their perceived feasibility for SDM. Of these 249 decisions, 39 were rated as rather feasible and 202 as rather not feasible for SDM. In 8 cases, rating was not possible due to missing information. Most SDM indications were seen in disposition-related decisions (24), followed by diagnostics (9) and treatment (6) (Fig. 1). Of 83 patients, 30 faced at least one decision that was rated as potentially feasible for SDM. Lastly, in 19 out of all 366 patients (about 5%), documentation was found on attempts of collaborative decision making between health professionals and patients (**Supplementary material**). Hypotheses could be generated for both research questions during further data analysis.

First research question: What factors influence the perceived feasibility of SDM for medical decisions in ED patients?

Hypothesis: Factors influencing the perceived feasibility of SDM in ED patients originate from three domains: patients, health professionals and context. Some factors can be nested in multiple domains.

Substantiation: When rating 249 medical decisions towards their perceived feasibility for SDM, both raters collected factors they deemed important for their decision. These factors were synthesized and thematically grouped (Table 2). They

could be sorted into three different domains relating to the context, patients and medical staff. Several factors could be sorted into more than one domain, resulting in a Venn diagram (Fig. 2).

T A B L E 1. Patient sample characteristics.

Characteristic	Distribution
Data extraction	
Cases	n = 619
Included	n = 366
Female	n = 170
Male	n = 196
Non-binary	n = 0
Median age	60.56
Excluded	n = 253
Reason for exclusion	
Clinical decompensation	n = 55
Insufficient documentation	n = 126
Immediate transfer	n = 49
Planned procedure	n = 1
Pregnancy/Underage	n = 1
Work accident insurance	n = 21
Data processing	
Cases	n = 83
Female	n = 31
Male	n = 52
Non-binary	n = 0
Median age	57.74

F I G U R E 1. Data extraction flowchart. SDM: Shared decision making.

Second research question: Which medical decisions in ED patients could be addressed through SDM?

Hypothesis: Numerous and diverse situations in ED patients could be feasible for SDM. Among them are three reoccurring scenarios: (a) handling uncertainties and risks in stable patients, (b) choosing between different yet reasonable treatment modalities and (c) matching patients' medical status with the extent of further actions.

Substantiation: After rating 249 medical decisions regarding their perceived feasibility for SDM, both raters discussed and thematically grouped their results (Table 3). Afterwards, all authors were invited for discussion. Three overall situations were conceptualized following an interpretivist approach (Fig. 3):

● Stable patients in which the likelihood of an underlying, time-sensitive pathology is unknown, or an available treatment option is not sufficiently supported by evidence. Here, the balance between further diagnostics, treatment and active surveillance could be discussed. Examples include patients with nontraumatic chest pain (Day 1 Case 5), ongoing symptoms (Day 1 Case 9) or those being evaluated for extended observation periods (Day 7 Case 36).

● Patients for whom more than one reasonable treatment option exists that hold different (dis-)advantages. In these, the option that fits the patient's life situation or preferences most could be evaluated. This includes possible supportive/preventive treatment in alcohol dependency (Day 4 Case 16) or less *vs.* more extensive therapy regimes in gastroenteritis with dehydration (Day 1 Case 22).

● Patients with a reasonable desire to choose less aggressive management. Here, the extent of further actions could be evaluated. High-aged, multimorbid or late-stage cancer patients illustrate examples in this group (Day 1 Case 32 or Day 6 Case 19).
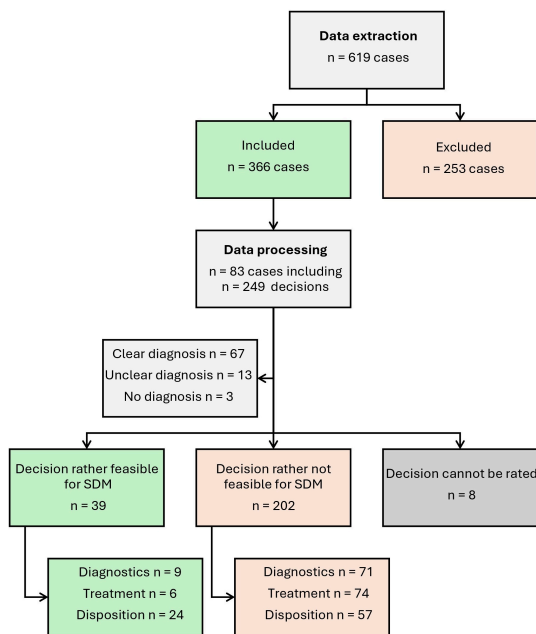
3.2 Links to empirical data

The inferences in this study are based on retrospective patient data. The anonymized extraction and processing results can be found in a data repository within the Open Science Framework (doi: 10.17605/OSF.IO/CYZ5G) [21].

Furthermore, Table 2 links the results for both research questions to examples from the underlying data set.

4. Discussion

4.1 Summary

Based on the existing framework by Probst [16] and supported by retrospective, qualitative data, this study presents a more detailed look at what medical decisions in EDs might be suitable for SDM, debating on the concept of clinical equipoise. Numerous potentially influencing factors were identified alongside three possibly reoccurring situations. Although this study was not intended to estimate quantitative measures, it hints towards a relevant proportion of ED being suitable for SDM.

T A B L E 2. Data analysis results.

Inference	Links to empirical data
Reoccurring situation: evaluating different treatment modalities	Day 1, Case 22: 34-year-old male with gastroenteritis in which the treatment modality could be discussed (intravenous *vs.* oral rehydration)
Reoccurring situation: unclear risks in stable patients	Day 1, Case 4: 41-year-old male with fatigue and discomfort is discharged with subsequent follow-up in primary care the next day after unremarkable laboratory
Reoccurring situation: matching patient's status with extent of further medical actions	Day 1, Case 32: 93-year-old male with septic cholangitis in which the extent of further therapy could be discussed (regular ward *vs.* intensive care, antibiotics yes/no, cholangiopancreatography yes/no)
Influencing factor: overall impression of patients' current health status	Day 1, Case 15: 84-year-old male with chest pain discharged for further cardiac work-up
Influencing factor: patients' and health professionals' appraisal and handling of risks and uncertainties	Day 1, Case 53: 21-year-old male with dyspnea, nausea and vomiting after a recent appendectomy—discharged after extensive diagnostics
Influencing factor: patients' and health professionals' attitudes towards collaborative decision making	Day 2, Case 28: 29-year-old male with traumatic headache and vertigo who, together with his physician, decided to order a head computed tomography
Influencing factor: existing healthcare structures and accessibility for patients	Day 6, Case 39: 40-year-old female with unilateral facial swelling who was scheduled for an outpatient follow-up
Influencing factor: availability of and recommendations by other medical specialties (consultants)	Day 1, Case 2: 60-year-old female with eye pain and vision loss who was scheduled for ophthalmologic follow-up in primary care
Influencing factor: patients' domestic situation (nursing home, relatives)	Day 5, Case 37: 83-year-old male with first episode of seizure admitted to hospital for further work-up
Influencing factor: patients' medical profiles including history, vulnerability and repeated consultations	Day 4, Case 4: 62-year-old male with syncope, neck pain and shortness of breath discharged home after diagnostics
Influencing factor: diagnostic and observational capacities in the emergency department and hospital	Day, Case 42: 86-year-old female with abdominal pain and reduced urinary output discharged home after diagnostics and treatment initiation
Additional factors: economic pressure towards patients, health professionals and hospitals, availability and knowledge of evidence and decision support, medicolegal regulations, availability of and adherence to guidelines, health professionals' background and experience, workload, time-restraints, patient volumes and inadequate use of emergency departments	Factors not identified within the data set but added upon research group remarks

4.2 Integration with prior work

The results in this study predominantly match with existing evidence. Billah *et al.* [17] highlighted clinicians' perceived barriers for SDM in ED patients (poor accessibility of decision aids, concern for increased medicolegal risk, lack of perceived need for decision aids, limited health literacy and/or capacity of patients, skepticism about validity/limited knowledge of decision aids, lack of time for decision aid use) alongside facilitators (positive attitudes towards SDM, patients' access to follow-up care, potential for improved patient satisfaction, potential for improved risk communication, strategic integration of decision aids into workflow, institutional support of decision aids). Schoenfeld described several different scenarios in which physicians claimed to use SDM, like in admission

decisions or when ordering computed tomography [22]. Most of these situations support the results of our work. However, there are also additional situations in Schoenfeld's work—like using SDM in patients planning to leave the ED against medical advice or for "pediatrics in general" [22]. The existing clinical trials by Hess [3, 23, 24], Minneci *et al.* [25], Omaki *et al.* [26] and Probst *et al.* [27] utilized scenarios that can be aligned with the three SDM-feasible situations identified in our study (Table 3). Differences can be found in these trials excluding patients with high-risk features or certain predisposing medical histories. One could insinuate that while studies try to categorize and more narrowly define collaborative care methods like SDM, scenarios in real-life emergency care might be more complex or blurred. Also,
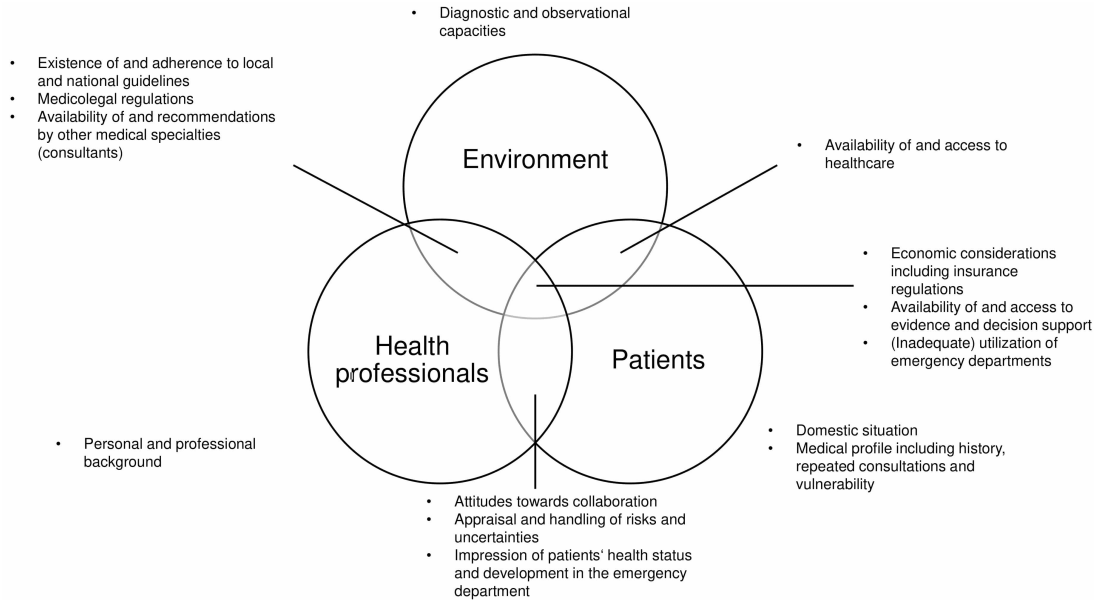
FIGURE 2. Factors influencing the perceived feasibility of shared decision making for emergency department patients.

health professionals might sometimes deviate from existing standard operating procedures.

4.3 Contributions to the field and transferability

Van der Horst *et al.* [8] highlighted the concept of clinical equipoise as a prerequisite for SDM in EM. This concept is also present in the qualitative studies and trials mentioned above. Our study expands and reframes clinical equipoise, moving from a dichotomous understanding where clinical equipoise is either present or absent towards a more nuanced approach. As a result, SDM in EDs could be approached in more sophisticated ways. We illustrate such ways in a new framework (Fig. 4). Based on the concepts by Probst *et al.* [16], our framework combines the existing evidence with our results on clinical equipoise alongside factors and situations associated with SDM in EDs. The strength of our methods and results can be seen in the differentiated look at individual cases of ED patients. Simultaneously, respecting the limitations of this work—like the qualitative approach, single center data set and data analysis guided by interpretivism—its results should be transferred critically onto future research efforts. Our study should rather be seen as an update to the existing evidence [3, 8, 16] instead of an opposition to what has been proposed around SDM in EM. Health professionals, hospitals and countries might utilize our approach in different ways—depending on their surrounding social and economic contexts alongside structures in their health systems. For instance, physicians in industrial countries might emphasize costs or medicolegal aspects, whereas physicians in threshold or developing countries focus on the availability of diagnostic capacities like computed tomography or magnetic resonance imaging.

4.4 Implications

In 2025, SDM in EM appears to have lost its implementation drive. Existing clinical trials were predominantly conducted between 2010 and 2020 [3, 23–27]. Besides, current literature around EM focuses on the sensitivity or specificity of diagnostic protocols [28], physicians' burnout levels [29] or inadequate utilization of EDs [30]. Projects on extensive collaborative care approaches in EDs are missing, although large projects in other medical specialties reveal promising results [5].

One prospect to leverage the implementation of SDM in emergency care can be seen in artificial intelligence (AI). The growing body of literature on AI in EM suggests different possible areas of utilization. They include decisions in triage or diagnostic [31], prognosis and treatment [32] or digitalizing hospitals [33]. Simultaneously, AI has become a subject of interest within the SDM-research field. While the International Shared Decision Making Society (ISDM) launched a special interest group for AI, several articles glimpsed its potential implications. These implications include the creation of SDM-material [34] or providing information on available options [35]. Fusing the developments of AI in both EM and SDM poses a promising intersection towards future care. AI in EM might assist in overcoming barriers like missing access to decision support or evidence-based information [17]. Furthermore, AI might aid health professionals in noticing SDM-feasible situations or by providing guidance in the process and summarizing relevant information to the individual patient [35]. However, AI will not be able to make medical decisions for health professionals or patients. Even in the fully digitalized, AI-driven future ED, medical decisions contain psychosocial aspects, meaningful conversations, emotions and relationships between patients and health professionals. Those aspects can barely be replaced by machines or algorithms, yet SDM addresses many of them [36]. This also accounts for ethical aspects, as SDM can foster autonomy by empowering patients to evaluate preference-sensitive decisions [6]. Consequently, there appears to be a growing implication for collaborative care approaches like SDM in future emergency care.

TABLE 3. Comparison with existing evidence.

First author, year and country	Setting	Topic	Study sample	Decision	Thematic matches	Thematic deviations
Hess, 2012, USA	Tertiary-care, academic emergency department (73,000 patients annually)	Nontraumatic chest pain	n = 208 patients	Further cardiac work-up (admission and diagnostics)	Unclear risks in stable (low-risk) patients evaluated	Moderate and high-risk patients excluded (*e.g.*, with history of cardiac disease or increase in troponin)
Hess, 2016, USA	Five emergency departments with rural or urban patient population	Nontraumatic chest pain	n = 913 patients	Further cardiac work-up (admission and diagnostics)	Unclear risks in stable (low-risk) patients evaluated	Moderate and high-risk patients excluded (*e.g.*, with history of cardiac disease or increase in troponin)
Hess, 2018, USA	Seven geographically diverse emergency departments	Computed tomography for head trauma in children	n = 243 clinicians (evaluating n = 971 patients)	Computed tomography *vs.* active observation	Unclear risks in stable (low-risk) patients evaluated (1 or 2 Pediatric Head Injury/Trauma Algorithm (PECARN) low-risk factors)	Moderate and high-risk patients excluded (*e.g.*, with predisposing history or with high-risk PECARN factor or 3 PECARN factors)
Minneci, 2019, USA	Single emergency department	Pediatric appendicitis	n = 200 children and their parents	Surgery *vs.* conservative treatment	Different treatment modalities evaluated	Patients with high-risk features excluded (*e.g.*, predisposing medical history, complicated appendicitis or comorbidities)
Omaki, 2020, USA	Two emergency departments with rural or urban setting	Pain medication selection in musculoskeletal pain	n = 124 patients	Less *vs.* more extensive analgesia	Different treatment modalities evaluated	Patients with pain scale below 4 and predisposing medical history excluded
Probst, 2020, USA	Tertiary-care, academic, urban emergency department (100,000 patients annually)	Syncope	n = 51 patients	Hospital admission *vs.* discharge in low-to moderate risk syncope	Unclear risks in stable (low-to moderate risk) patients evaluated	Eligibility for shared decision making decided by treating clinicians
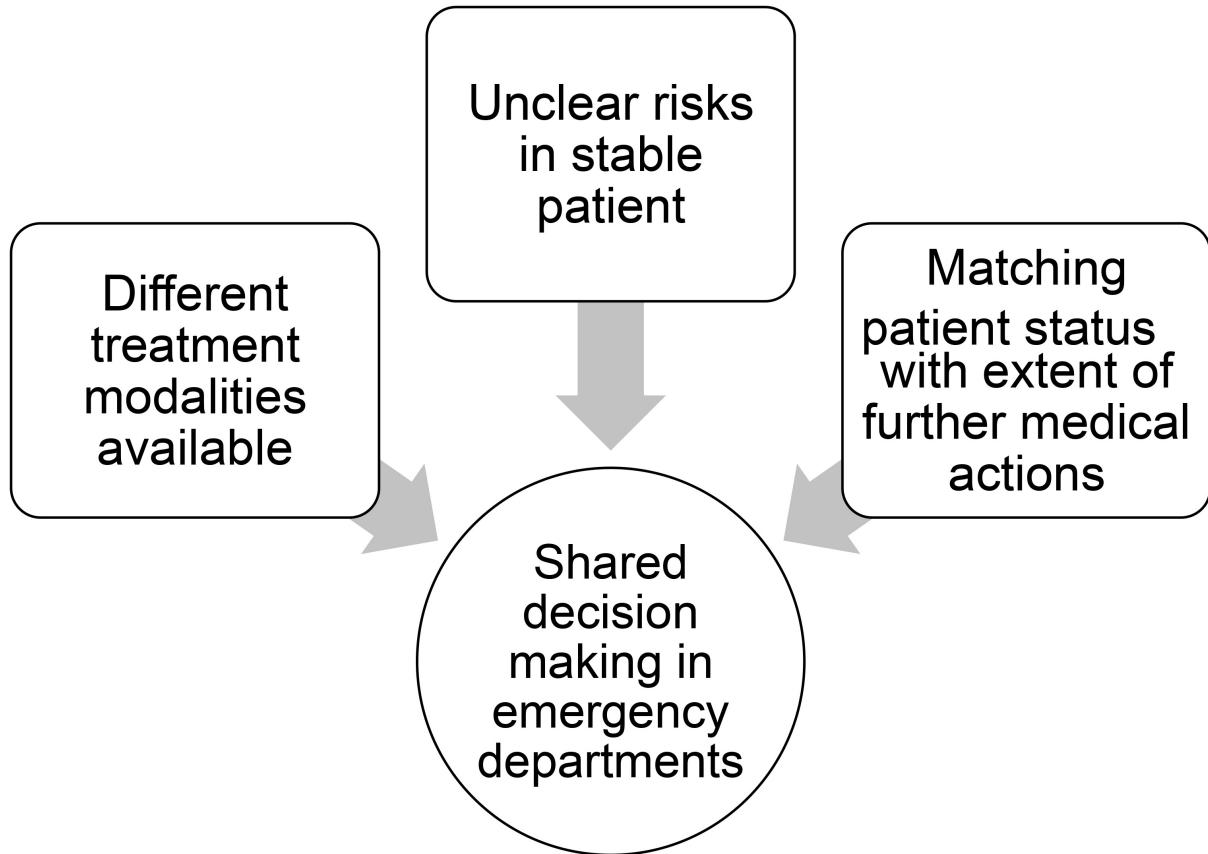
F I G U R E 3. Situations for shared decision making in emergency department patients.

4.5 Limitations

First, being of a qualitative nature, the results must be seen as an expression of the associated researchers' occupational backgrounds and judgment. This includes the terms used for operationalizing the feasibility of SDM. Instead of differentiating between rather and rather not feasible, one could have installed alternative terms (likely, probably, *etc.*). And although a broad spectrum of different expertise was included, other researchers might rate patients' feasibility for SDM differently, thereby finding additional influential factors or missing some of those presented here. Consequently, the results of this study should be interpreted as explorative.

Second, this study is at risk of self-confirmation bias. This risk was acknowledged during the study course; however, it cannot be eliminated fully. Self-confirmation might have shifted the results towards a more optimistic interpretation. Comparing this study's results with existing literature and installing two raters for data extraction and interpretation were intended to minimize those effects. However, especially by knowing some of the existing randomized clinical trials beforehand, the themes identified here might have been shaped to some extent from the start.

Third, this work is at risk of overgeneralization. Factors influencing the feasibility of SDM in EDs, as well as the repeating situations identified here, could be more manifold and complex in reality.

Aside from these three major limitations, there are additional ones to mention. While this single-center snapshot cannot cover all conditions, it allows an overview of the common factors that might influence the feasibility of SDM in EDs. It is difficult to properly estimate appropriate study population sizes in qualitative work as no underlying statistical evaluation is given. Furthermore, medicine is a dynamic and developing scientific field in which the understanding of treatment concepts and pathologies evolve, or new diseases occur (like COVID-19). Also, new methods of care like artificial intelligence will arise in the future. Thus, the feasibility of SDM in EDs alongside the underlying factors may evolve likewise. Also, by extracting data from discharge letters, this study might have missed information or interactions that happened during the ED stay but were not documented.

Apart from this, our study is missing the patient perspective. However, as its focus is on the perceived appropriateness of medical decisions in EDs and patients can barely rate medical aspects of cases, this would probably not influence the results or discussion. Also, there is evidence of patients' attitudes towards SDM in EDs [37].

Lastly, it remains debatable whether the study protocol modifications pose a limitation or an expression of the qualitative research design.

5. Conclusions

Clinical equipoise poses one barrier towards broad utilization of SDM in EM. Analyzing a set of ED patients towards their perceived feasibility for SDM through a multidisciplinary research group yielded two main results. First, numerous

Shared decision making in emergency departments

By Daniel Litsch, Bernhard Strauss, Swetlana Philipp, Jan-Christoph Lewejohann, Stefanie Hemmer, Matthias Nuernberger, Friedemann Geiger, Fülöp Scheibler, Felix Wehking
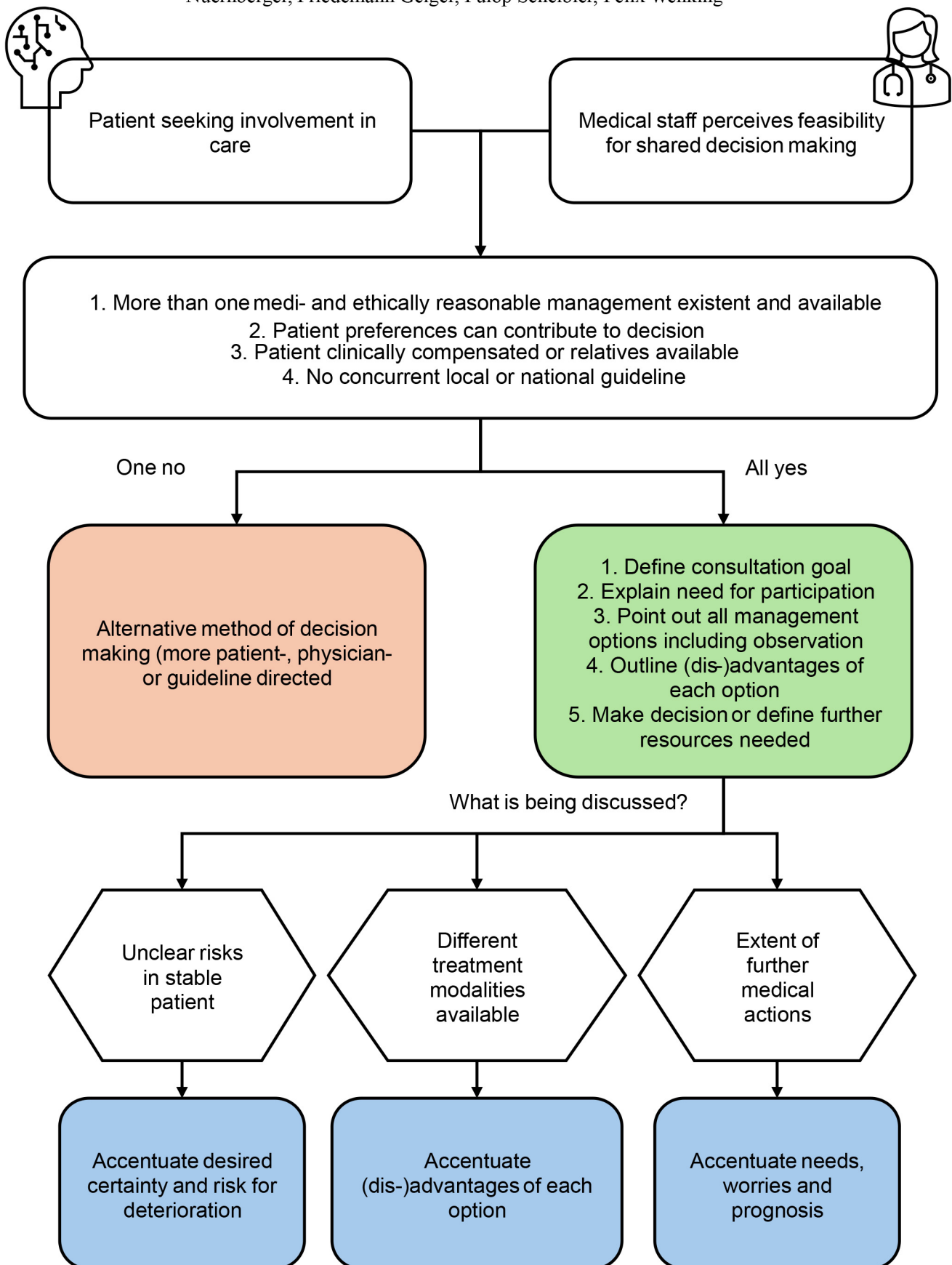

Patient seeking involvement in care

Medical staff perceives feasibility for shared decision making

1. More than one medi- and ethically reasonable management existent and available
2. Patient preferences can contribute to decision
3. Patient clinically compensated or relatives available
4. No concurrent local or national guideline

One no

All yes

Alternative method of decision making (more patient-, physician- or guideline directed)

1. Define consultation goal
2. Explain need for participation
3. Point out all management options including observation
4. Outline (dis-)advantages of each option
5. Make decision or define further resources needed

What is being discussed?

Unclear risks in stable patient

Different treatment modalities available

Extent of further medical actions

Accentuate desired certainty and risk for deterioration

Accentuate (dis-)advantages of each option

Accentuate needs, worries and prognosis

FIGURE 4. Updated framework for shared decision making in emergency department patients.

factors relating to the context, health professionals and patients potentially contribute to the perceived feasibility of ED patients for SDM. Second, three reoccurring situations were identified for potential future SDM implementation in EDs. These situations cover (a) stable patients with unclear risks for deterioration, (b) conditions in which different yet justifiable treatment options exist and (c) matching the extent of medical actions with patients' health status. Following these results, the concept of clinical equipoise—which poses a barrier for future SDM implementation in ED—could be updated through a more differentiated approach.

ABBREVIATIONS

ED, emergency department; EM, emergency medicine; RCT, randomized clinical trial; SDM, Shared decision making; SRQR, Standards for Reporting Qualitative Research; ISDM, International Shared Decision Making Society; AI, artificial intelligence; PECARN, Pediatric Head Injury/Trauma Algorithm.

AVAILABILITY OF DATA AND MATERIALS

The underlying data set can be found in a repository within the Open Science Framework (doi: 10.17605/OSF.IO/CYZ5G). Aside, results from data extraction and processing are fully presented within the article.

AUTHOR CONTRIBUTIONS

DL and FW—developed the initial research question and wrote the study protocol; conducted data extraction and processing while FS supervised both steps; drafted the initial manuscript. FG, FS, MN, BS, SP, JCL and SH—contributed to the underlying methodology. All authors contributed to subsequent data analysis and result interpretation. All authors revised the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The ethics committee at the University Hospital Jena approved the conduct of this study (Registry number 2023-2876-Daten) and waived the requirement for informed consent.

ACKNOWLEDGMENT

Not applicable.

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

FG, FS and FW were part of the special project MAKING SDMAREALITY, which received funding from the German Federal Joint Committee (Funding code: 01NVF17009). FG and FS are shareholders of the SHARE TO CARE limited liability company. FG received funds from the European Union. DL, BS, SP, JCL, SH and MN report no conflicts of interest.

SUPPLEMENTARY MATERIAL

Supplementary material associated with this article can be found, in the online version, at https://oss.signavitae.com/mre-signavitae/article/1986665628423864320/attachment/Supplementary%20material.docx.

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