



## Review Article

# Patient-Surgeon Communication: A Literature Review and Thematic Analysis

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### Abstract

The wave of new research on the patient-surgeon relationship over the past two decades calls for a literature review. Our aim is to provide an up-to-date overview of the nature, aspects, and impacts of this relationship. We examined 97 articles published from 2000 to 2023 using a predefined frame of reference. We assessed the articles and summarized their essential points. The results were organized according to the patient journey, from surgeon selection to conclusion of the relationship. The articles highlight significant changes in the patient-surgeon relationship over the past 20 years. Patients seek more than kindness and prestige in their surgeons. Their behaviors and needs have changed as the paternalistic model shifts to a patient-centered approach. Clear, transparent, factual information, disclosure of conflicts of interest, information evidence level, verification of patient comprehension, and use of electronic messaging for transferring surgeon's communication and on-line documentation are essential in this approach. On a personal level, the importance of empathy, honesty, composure, and patient participation has grown. Body language plays a significant role. These changes have fostered shared decision-making, informed consent and a caring environment, enhancing patient trust. Cultivating trust through transparent, honest relationships can enhance outcomes, mitigate legal issues, and speed recovery. Communication difficulties may arise and must be recognized. The patient-surgeon relationship must be nurtured over time. In conclusion, it is crucial to provide surgeons with training in relationship-building. Quantitative measures such as PROMs and PREMs are emergent tools. The role of the Internet and Artificial Intelligence remains to be explored.

**Keywords:** Attitudes; Communication Practice; Health Knowledge; Surgeons; Surgeon-patient communication; Trust Attitude of Health Personnel

## Introduction

For more than 2,500 years, the Hippocratic Oath has been the guiding principle for medical care. The original tenets of medical ethics in the Hippocratic Corpus are the obligation to help patients (beneficence), the obligation not to harm patients through ignorance or by design (nonmaleficence), and protection of confidentiality [1]. These principles have induced a paternalistic approach to medical care: the physician's responsibility to act in the best interests of the patient takes precedence over the patient's ideas and rights [2]. The Hippocratic Corpus is the basis of many modern medical codes, including the Code of Medical Ethics of the American Medical Association (AMA code). In its first edition, in 1847, the AMA code included ideas of physicians from ancient times, such as "prompt and implicit" patient obedience [1]. Respect of a patient's rights and autonomy (which allows a patient to reject a procedure) was not incorporated until the 1980 revision. In the 2017 revision of the AMA code, the patient-physician relationship is described as a "collaborative effort and mutually respectful alliance" based on "informed, deliberative decision-making" [3]. Although modern medical ethics are designed to protect the patient and their human rights, the unequal standing of patient and physician with regard to knowledge, experience and responsibility in the decision-making process can generate conflicts, potentially making physicians reluctant to apply the code [4,5]. Surgeons and physicians share the same medical ethics. However, the invasiveness and life-threatening nature of surgical procedures, added to the extraordinary decision-making power of surgeons during surgery, may require a differentiation between the patient-surgeon relationship and the patient-physician relationship [1]. In this article we aim to perform a literature review in order to investigate what is known about the patient-surgeon relationship, and to look for contradictory and challenging issues. We also seek to explore how good communication can impact treatment outcome.

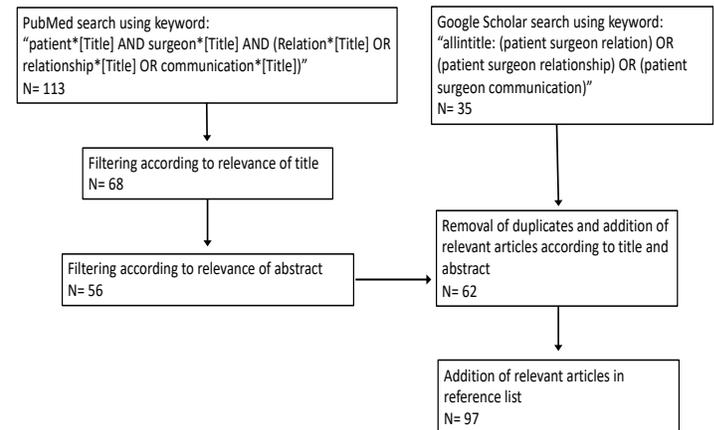
## Material and Methods

PubMed and Google Scholar databases from years 2000 to 2023 were searched for relevant articles. We used the keywords "patient\*[Title] AND surgeon\*[Title] AND (Relation\*[Title] OR relationship\*[Title] OR communication\*[Title])" for PubMed, and "allintitle: (patient surgeon relation) OR (patient surgeon relationship) OR (patient surgeon communication)" for Google Scholar. The resulting articles were filtered according to title and abstract relevance. After removing duplicates, the reference list of remaining articles was searched for additional relevant articles.

The full texts of the final list of articles were obtained for analysis. The texts were analyzed for prevalent themes. The articles were then grouped by theme, and theme summaries were provided. We also noted year of publication, affiliation and function of first and last author, and the research method used for each article.

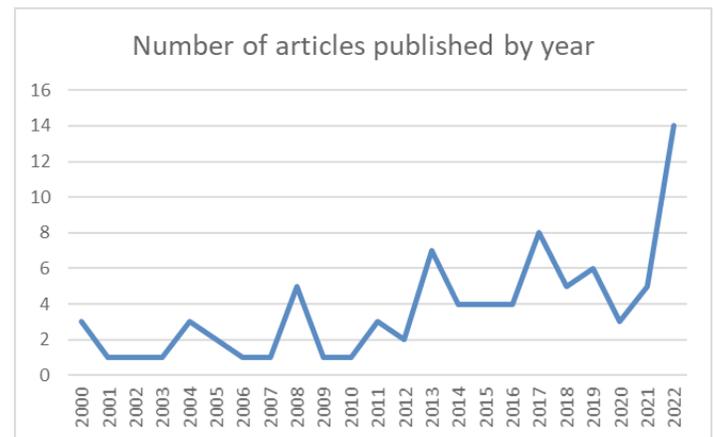
## Results

The selection result was 95 articles. The Prisma chart of this process is shown in Figure 1.



**Figure 1:** Prisma chart for article selection.

Figure 2 shows the number of published articles on this subject per year from 2000 to 2022.



**Figure 2:** Trend in references to "patient-surgeon communication" in the literature.

Regarding affiliation of first and last authors, 48% were from surgical departments and the others were from medical departments including medicine, public health, ethics, and psychology. The evidence level of articles was 3% for level 1, 19% for level 2, 47% for level 3, 25% for level 4, and 6% for level 5.

We identified 16 themes, discussed as follows:

### **Unique Nature of Patient-Surgeon Relationship**

Establishing trust between patient and surgeon is quite different than from between patient and physician. The risk, uncertainty and extremely intimate situation of the patient relative to the surgery, which is an invasive, potentially dangerous procedure, are unique to this relationship [6,7]. In contrast to a medical treatment, which a patient can generally decide to stop at any time, during surgery the patient is unable to stop the procedure, change their mind regarding its performance [8,9], request the advice of another surgeon, or watch the procedure as it unfolds [9]. Surgeons spend the majority of their consultations educating patients on choice of treatment and the treatment process, because the diagnosis is generally already known. This differs from non-surgeon physicians, who use the consultation to look for the cause of the symptoms and perform a diagnosis [10]. Certain studies mention that communication in surgical clinics focuses more on biomedical issues than psychological counselling or lifestyle issues. For example, in one study, where gynecologists and patients initiated the exchange 60% and 40% of time, respectively, only 3% of the information exchanged concerned psychosocial issues. Surgeon-patient consultations also differ from primary care consultations in that there are two distinct forms: referral for surgery, and postoperative follow-up [11]. Surgeons generally ask patients closed-ended questions and expect short answers [12].

In a case-control study on “alliance score measurements” of breast cancer patients and surgeons, the attachment and alliance of patients to/with their surgeons peak after the first visit. This contrasts with patient attachment in cardiac or neurological visits, which grows over several months. The authors concluded that a patient’s sense of a clinical relationship arises from feelings of surgeon competence and authorship rather than from counseling or PCC (Patient-Centered Communication, where surgeon seeks to understand patient’s perspective, personality, life history and social background). Surgeons should perhaps prioritize supporting a patient’s sense of relationship from the outset over “building a relationship” [13]. Another difference concerns perioperative communication with the patient’s family. This communication is considered to be distinct from clinic and postoperative communication [14]. Perioperative communication may decrease the patient’s family’s anxiety and increase satisfaction [14,15]. In a randomized control trial study, communicating on the progress of important surgical steps through steady electronic message updates decreased family anxiety and improved satisfaction in most cases, compared to a single message by the surgeon near the end of the surgery [15]. Lack of perioperative communication with families by residents is reported to be common [14].

### **Building Trust and Related Issues**

Trust is an interpersonal connection between patient and surgeon. It is defined as “a risky choice of making oneself dependent on the actions of another in a situation of uncertainty, based upon some expectation of whether the other will act in a benevolent fashion despite an opportunity to betray.” [16]. Trust is situation-specific and may evolve over time. Certain authors describe trust through a formula: “a truster A that trusts (judges the trustworthiness of) a trustee B with regard to some behavior X in context Y at time t”. Static parameters in this formula are person A and B (patient and surgeon), with their personalities. Dynamic parameters are person’s expectations, context, and time [16]. Quality of patient-surgeon relationship as measured by the standardized Q-PASREL instrument was found to have decreased during follow-up [9]. A surgeon’s personal qualities that help to build trust include kindness, ability to establish interpersonal relationships (give and receive information), receptiveness, having patient’s best interests at heart (fiduciary duty, fidelity), honesty, caring about quality, and supportiveness [17]. Other factors include maintaining eye contact, being thorough yet concise, not being rushed, knowing the patient’s medical history, leading a high-energy team [18], and respecting the patient’s spiritual and religious background [19]. Another study emphasized the importance of considering the psychological suffering of obese patients in bariatric surgery. Avoiding stigmatization, setting realistic goals, using images and plain language to explain surgical/treatment stages, and identifying and addressing misinformation found on the internet are factors that help establish trust and improve satisfaction [20].

The surgeon’s or hospital’s reputation, surgeon’s on-the-job interactions observed by the patient, and patient’s relationship with clinic and operating room personnel and trainees are all important for building trust [18]. In consultations, interpersonal skills play a greater role than informational and technical skills in creating trust [18].

A patient’s character is also important when building trust. In a study evaluating the causes behind the differing sense of relationship of breast cancer patients with their surgeons, a patient’s character was found to be a decisive factor [21]. Personality traits may influence the capacity to build trust. For example, people who tend to pleasant (warm, friendly), extrovertish (lively) and not too conscientious (not very organized or meticulous) are generally more trusting than people who tend to be anxious or moody (neuroticism) [16]. In addition, persons with an external LOC (locus of control), i.e. who believe that they do not have control over their lives and that external factors are responsible for the situations they encounter, may be more trusting than persons who believe they have control and influence over their life (internal LOC) [16]. In

one study analyzing prognostication interviews between surgeons and pancreatic cancer patients, conversations were found to be driven by three interrelated concepts: understanding, trust, and hope. Surgeons carefully deliver measured information to patients through hopeful, honest, and empathetic messages. Patients expect simple and truthful information, imparted with caring and optimism [22].

While efficiency and financial benefit are synonymous in all industries, the medical sector is unique in its goal to provide patient wellbeing [23]. Financial considerations that aim to reduce clinic time in favor of increased operating time are counterproductive for building trust [1]. Other measures, such as creating a barrier between clinic physicians, who see and prepare the patients for operation, and the surgeons who don't see the patients until they perform the operation, are not only detrimental to building trust [1]: they are also unethical, and turn surgeons into simple technicians [24]. Other behaviors that impair trust-building include failure to research a patient's questions, failure to sit down, use of words the patient does not understand, failure to see the patient as a person, failure to introduce oneself, and giving unsatisfactory answers to patients' questions [25].

## Transparency

There are two ways to frame transparency. The most common one consists in conveying information that is accurate, objective, and comprehensive. It consists of one-way communication of data. The second way is to view transparency as a social interaction involving three parties: content, viewer and medium. In this approach, surgeon and patient co-construct transparency through dialog, interpretation, and solutions. There is a conflict inherent to this process: on the one hand, there is an attempt to frame and abridge the data so it can be understood and assimilated, and on the other, there is a quest to fully disclose all raw information. To achieve trust, this conflict must be managed. The value of transparency in building trust requires communication processes based on relational and contextual factors.

The source of information (surgeon) may have good reasons for framing and abridging the information. However, they should ensure the stability, credibility, and reliability of the information transferred to guarantee continued trust. Complete transparency in communication is not a surefire trust-building strategy. However, it can be helpful as a concept for working toward a relationship based on honesty and trust [26]. In a study seeking to understand the cause of the discrepancy in surgeon versus patient satisfaction rates - as high as 20% in total knee arthroplasty - the authors found that unmet patient expectations and complications are the most predictive [27]. In another study, the authors proposed a checklist for ensuring adequate exchange of information before an operation. They identified four key topics requiring discussion:

pain, medication, physiotherapy, and general questions such as return to work [28].

## Impact of Surgeon-Patient Ethnicity and Sex Concordance

Demographic characteristics that are shared by surgeon and patient, such as sex and ethnicity, promote a better understanding between the protagonists and improve satisfaction and surgical outcomes [29,30]. In a population-based cohort study in Canada, difference in sex between surgeons and patients was found to negatively impact outcomes following common surgical procedures [31]. In this study, greater adverse effects, mortality and readmission was found among female patients operated on by male surgeons [31]. An analysis of a census of heart attack patients admitted to Florida hospitals between 1991 and 2010 revealed that gender difference was associated with increased mortality of female patients following myocardial infarction. It was also found that cooperation between male and female physicians led to better outcomes [32]. In another population-based cohort study, it was found that female surgeons performed operations on patients at a lower rate than male surgeons. They also had a statistically significant lower 30-day mortality rate. Surgery-related parameters such as complications, readmissions and length of stay were the same as for male surgeons [33]. In an analysis of 196 videotapes of 30 real-life and 166 simulated patient consultations, patients were found to be more satisfied with female gynecologists who establish patient-centric communication [34]. In a retrospective cross-sectional study of breast cancer patients, ethnic concordance associated with improved quality of life. However, gender concordance was not associated with better outcomes [29]. By analyzing the audio recordings of orthopedic clinic visits, the authors concluded that surgeons were more responsive, attentive and respectful, and patient's communication and satisfaction ratings were higher, when surgeon and patient belonged to the same ethnic group [35].

## Attitude Toward Patients and Their Families

John Gregory, an 18<sup>th</sup> century Scottish physician and moralist, stated that physicians need to "develop the sense of sympathy and sensibility of the heart to relieve the pain of the patient in the most powerful manner" [24]. He developed the concepts of fiduciary relationship and patient-centered medical ethics [24]. He believed that a fiduciary relationship required that patients be sufficiently educated to understand the physician's recommendations [24]. While this is not the exact equivalent of informed consent, it highlights its value for building trust before providing the patient with information [18]. A fiducial or covenantal relationship is the essence of professionalism in medicine [36]. In this relationship, which is based on trust and confidence, one party (the surgeon) undertakes to act in the best interests of another party (the patient).

“Traits of professionalism” such as responsibility, commitment to excellence, respect for others, honesty and integrity, and care and compassion are the core of a fiducial relationship [36]. Healthcare knowledge and delivery systems may change radically over time, but the basic values of medical professionalism remain the same. These values are powerful, lasting drivers of improvement in healthcare, and should be included in any training program, system change or payment system reform [37].

In the patient relationship, empathy is recognized as a key factor for increasing patient satisfaction [38]. Empathetic relationships were found to increase patient satisfaction during hand surgery clinic visits. Neither the actual visit time nor pre-visit expectations of the visit time were important factors in the patients’ perception of whether the surgeon appeared rushed [38]. An empathetic relationship does not necessarily mean truly empathetic communication, but rather a communication strategy in which the surgeon shows their interest in the patient’s wellbeing. For example, a surgeon can spend less time on treatment steps, simply outlining the key points, and then briefly chat about non-medical topics, allowing sufficient time for discussion and feedback [38]. Surgeons do not generally explore the emotions of their patients (only 38% of cases). These missed opportunities generally result in longer visits [10]. In another study, it was found that most patients express concerns about logistics such as operation timing and healthcare facilities to be used. Generally, important concerns such as coping with the operation, surgery-induced changes for family life and work, and the surgeon’s experience are rarely raised [39]. The most empathetic exchanges with the surgeon take place near the end of the visit. The surgeon’s ability to respond to empathetic concerns is not correlated to their level of medical training. Both residents and senior surgeons miss 70% of empathic opportunities [40].

Another strategy for increasing patient satisfaction is to adopt PCC behaviors [41]. In one study, the authors searched for PCC behaviors during consultation such as considering the patient’s preferred treatment, encouraging the patient to participate in decision-making, answering the patient’s medical questions, remaining positive when a patient provides irrelevant medical information, and expressing sympathy/empathy/hope. They concluded that these behaviors improve satisfaction and reduce hopelessness [41]. The quality of relationship that attending physicians and residents establish with the families of patients admitted to intensive care units was investigated to identify factors affecting congruence in surgeon-family understanding of patient prognosis [42]. It was found that congruence depends on the quality of surgeon-family engagement and on information obtained from other hospitals or personal sources. Surgeon and family factors impacting this engagement include case complexity, previous experience and beliefs, as well as current experience and

the stress levels of both the patient’s family and the surgeon [42].

### **Adjusting Expectations and Language Use**

Good surgeon-patient communication, explaining the surgical options and providing sufficient detail all enable informed consent. However, there are also other factors that promote good counselling. In a study by Brubaker and Shull [43], four key issues were identified as requiring assessment during PCC: expectations, goal setting, goal achievement, and satisfaction (EGGS). The treatment plan was derived from a discussion involving the surgeon’s knowledge and experience, but that also left room for the patient’s ideas, fears, and expectations. If all positive counselling aspects are not acknowledged, negative postoperative outcomes may result, including pain, longer behavioral recovery, and longer hospital stays [44].

Patients with limited Health Literacy (HL) may have difficulty understanding written/verbal communication [45]. There are significant variations in surgeons’ rate of speech and use of medical terms/statistics. Both impact patient understanding [45]. Patients with limited HL tend to ask fewer questions, visit length is generally shorter, and they tend to be passive with regard to decision-making. This can lead to postoperative dissatisfaction due to discrepancies in surgeon and patient expectations and poor adherence to treatment plans, as shown in cases of hand surgery [46], foot and ankle surgery [47], and joint replacement surgery [48]. It should be noted however that patients who feel an increased sense of partnership with their surgeons may become overly optimistic and have higher expectations [47]. In another study, orthopedic surgeons’ tailoring of information based on their perception of patient characteristics was investigated [49]. Surgeons’ assessment of patients’ competence (illness management and communication abilities), autonomy and interpersonal behavior (patient/relatives) was essential. Surgeons tailored information about 70% of the time [49].

In another study, orthopedic surgeons used a visual (traffic light system) to guide patients [50]. The treatment plan was coded in Red (strict immobilization), Yellow (proceed with caution, active mobilization), Green (move forward with active and passive movements) and Blue (guided weight-bearing and strengthening). The authors reported good acceptance of the color code by both clinics and patients. Concerning the attempt to influence the other party during consultations, in one study the authors viewed physician and patient as opponents who use strategies to establish their authority. The patients were found to use “emotional distress or social disruption” reasoning in the absence of a medical issue [12]. In another study, surgeons’ use of an authoritarian tone of voice was associated with three times more malpractice claims [51]. Patients are more satisfied when a surgeon uses self-disclosure and has a warm and reassuring tone [52]. Relative to

consultation time, addressing patients' worries regarding surgery or disease, and adopting a shared decision-making strategy did not significantly increase consultation times [53]. Consultations were shorter when patients' worries were addressed [10]. In addition to explaining treatment options and uncertainties, surgeons should be attune to the slightest signs of patient worries, and allow patients to address them during the consultation [12].

### **Explanation and Comprehension Issues**

In an analysis of the interviews of 38 patients discharged from an oncology ward, patients' information recall concerning surgery, histological diagnosis, postoperative therapy and treatment goal were assessed. Only 70% of patients correctly recalled information about the goal of the treatment. Recall was worse for cases of palliative therapy (38%) relative to curative therapy (89%). Although the patients were satisfied overall, quality of communication was lower for palliative care [54]. Patient anxiety can negatively affect comprehension [55]. Written communication and allowing the patient time to think after a visit is helpful in this regard. To optimize comprehension, surgeons can tailor communication to a patient's level of education, socioeconomic category, and level of intelligence [55]. Challenging communication situations often arise when surgeons propose less aggressive or non-operative treatment options. For example, counselling a patient with a suspicious thyroid nodule or low-grade thyroid cancer and proposing relevant diagnosis or treatment choices (observation, biopsy, non-operative treatment, lobectomy, thyroidectomy) requires strong communication skills on the part of the surgeon to reach the best decision with the patient [56]. According to the authors, there is a worldwide tendency to overdiagnose and overtreat thyroid nodules. This can be reduced through good communication, which can thus improve outcomes [56]. Similarly, according to a survey of orthopedic surgeons in a large tertiary care center, the most challenging situation encountered is a misaligned patient expectation of surgery in cases of a non-surgical diagnosis [57]. Managing post-operative expectations and communication with dissatisfied patients were also challenges [57].

For pediatric patients, communication with the child and their family is important. Children should be asked about their preferences, and accommodations should be implemented for minimal school interference. Regardless of the child's age, communication and preference acknowledgment should be attempted. The surgeon's vocabulary can be adjusted to the child's age. The surgeon should assess the effect of their words on the child and their family (self-reflection) [58]. Use of nontransparent face masks by orthopedic surgeons impaired communication and patient comprehension of surgeon's speech. Emotional factors such as affectivity and empathy seemed to be less impacted. Being age

66 and over, and having known hearing issues, were aggravating factors [59].

### **Shared Decision-Making (SDM) and Participation in Decision-Making**

In a critical examination of the SDM concept [5,60], the authors determined that in SDM, both parties need to agree on the decision at the end of the process (like a deal). At one extreme, in the "paternalistic model", a physician proposes a treatment in the best interest of the patient and expects total patient obedience. This model denies patient autonomy and is not accepted [5,60]. At the other extreme, in the "informative model", a physician plays the role of "competent technical expert" [60] and the patient has total control over the treatment. This model is also rejected, because although patients have the right to request a specific treatment according to their preference and knowledge, a surgeon is under no obligation to provide this treatment [5], since they are held to follow the treatment guidelines. The optimum SDM model lies in between these two extremes, as patients usually wish to be guided by surgeons [5]. Patients want to be able to discuss a treatment plan, or reject a surgeon's recommendations. This shows that patients prefer "participation in decision-making" over SDM. In one study, surgeons claimed that implementation of clinical practice guidelines is limited in 75% of cases due to SDM [61]. Other aspects of a treatment, including timing of the surgery and postoperative rehabilitation procedures, may be more compatible with SDM [62].

The authors propose two models that they consider the most appropriate [5,60]. The first is the "Professionally Driven Best Interest Compromise" model [5], or "Deliberative" model [60], in which the surgeon plays the role of "Friend or Teacher", proposes several options in the best interest of the patient, and tries to steer the patient toward what they consider the best option. There is a "framing problem" regarding the choice of treatment options, and there should be a lowest acceptable threshold for these options [5]. The second model is the "Professionally-Driven Zone of Patient or Surrogate Discretion" model [5], or "Interpretive" model [60], where the surgeon acts as "Counselor or Advisor", proposes a range of acceptable treatment options with no order of preference, and helps the patient choose according to their own values. In this model, it is ethically accepted that to comply with SDM, the surgeon does not have to insist on the treatment option they consider best for the patient's wellbeing. They empower the patient to decide among all acceptable options [5]. No article discusses SDM in emergent situations [62].

The results of surveys on patient preference for SDM may be inaccurate, as respondents may confuse "participation in decision-making" and "shared decision-making" [62]. Educated

young female patients are the most favorable to SDM. Surgeons prefer SDM when there is no firm evidence for a treatment plan, multiple treatment options, or in the event that the treatment will change the patient's lifestyle, as responsibility for variability of outcomes is also shared [62]. In a longitudinal study of patients undergoing total joint replacement, SDM was not associated with improved outcome. However, it was demonstrated that SDM may improve satisfaction [63]. In another study analyzing treatment coordination during surgical consultations for colorectal cancer patients, it was found that a patient's wish to engage in SDM is subject to the decision of multidisciplinary tumor boards and is often not granted [4].

### **Patient Decision Aids**

Patient decision aids are useful in helping patients make appropriate decisions [64]. They decrease patient decisional conflict, which is tied to feeling uninformed, or to indecision relative to personal values [65]. There is moderate-quality evidence that decision aids stimulate patients to play a more active role in treatment decisions, and there is low-quality evidence that decision aids improve congruence between the option chosen and personal values [65]. The impact of these aids on consultation time and choice of treatment is variable. They have no adverse effect on satisfaction or outcome [65]. Despite the evidence that these aids are effective for enhancing the quality of preference-sensitive decisions, their use in orthopedic surgery practice is limited due to cost issues [66]. In a randomized clinical trial, Artificial Intelligence-enabled personalized decision aids for Total Knee Arthroplasty (TKR) were shown to significantly improve decision quality, level of SDM and satisfaction, without significantly impacting consultation times or TKR rates. The authors concluded that decision aids using a personalized, data-driven approach can enhance SDM in the management of knee osteoarthritis [67].

### **Awake Procedure Challenges**

During awake procedures, the three objectives of efficiently performing a procedure, managing communication in the room, and teaching trainees can come into conflict [68]. The patient's ergonomic comfort, a quiet room with background music chosen according to the patient's preference, avoidance of words that generate stress such as "knife" or "oops", nonverbal communication with staff, and communication with the patient are among the patient anxiety management strategies [68]. Some surgeons prefer to explain the trainee's level of involvement in the procedure before the surgery and ask for permission, while others avoid mentioning trainee involvement. Regarding teaching during the awake procedure, some surgeons include patient and trainee in the discussion, while others shut out the patient from training discussions, using obfuscation and medical jargon to teach the trainee, which leads to decreased trainee involvement [68,69].

Various strategies are used to communicate with the patient. Some surgeons seek to distract the patient from the procedure, while others prefer to give the patient instructions for focusing on the movements required during the procedure. Surgeons need to anticipate and manage patient reactions and behavior before and during the procedure. Issues concerned are sensory changes, avoidance of inappropriate movements, providing information on procedure progress, and telling patients to report sensory discomfort or pain [68]. Surgeons generally learn communication techniques through informal modelling and self-education, and they may feel insecure in this area [68].

### **Postoperative Period and Follow-Up**

In one study, the authors discovered that patient and surgeon expectation agreement on outcome can be inferred indirectly from the structure of postoperative chart notes [70]. They analyzed the Patient Reported Outcome Measures (PROMs) and found that patient and surgeon agreed in 76% of cases and disagreed in 24% [70]. Analysis of chart notes showed that positive language ("absolutely", "very", "whatsoever", "completely", and especially "happy") and a follow-up plan on an "as-needed" basis (if condition worsens or if new symptoms) are associated with agreement on outcome. On the other hand, use of the word "much" (much better, much improved, much more) and emphasis on the prognosis (how the patient's symptoms will evolve in the future) are associated with disagreement. Aggravation of pre-existing psychological conditions may occur and secondary gains may be sought in situations where there is disagreement [70]. If secondary gains are sought, the results of PROMs and psychometric tests are skewed [71].

In another study, good patient-surgeon communication and inclusion of "return to work" discussions during postoperative consultations were associated with shorter sick leave times and faster return to work [9]. The authors proposed an 11-item questionnaire which evaluates both the surgeon-patient empathetic relationship and administrative/work-related issues [72]. A positive relationship with the surgeon and the absence of complications were associated with adherence to follow-up with bariatric surgery patients [73]. The presence of complications did not impact the overall patient-surgeon relationship. However, a negative relationship with the surgeon was associated with a higher rate of complications [73].

### **Patient-Surgeon Relationship During Postoperative Complications**

A preoperative explanation of potential complications and surgery risks is an element of "informed consent", which is an ethical concept codified by law [74]. It is shown that delivering adequate information to the patient can improve patient-surgeon

postoperative communication. In one study, the authors used a preoperative handout to explain common complications following “laser prostatic enucleation” surgery. The authors found that the handouts improved postoperative understanding of common complications and diminished the intensity of how the complications were experienced [75]. In another study, the authors explored the relationship between unexpected postoperative complications after colorectal cancer surgery, patient-reported trust and patient-surgeon communication [76]. They found that the relationship between trust and complications is influenced by communication. In patients who reported a high level of patient-centered communication, trust remained high, even in the event of complications. Poor communication was associated with diminished trust in case of complications [76]. In cases of failed bariatric surgery, the authors stated that avoidance of an accusatory or punitive tone, keeping calm, explaining the possible anatomical causes of the failure, and seeking nutritional and psychological support to maintain a positive attitude toward the problem are responsibilities of both parties [20]. Complications requiring repeated operations were shown to affect all patient-perceived surgeon-related attributes, and to impair the patient-surgeon relationship [77]. Some authors believe the priority should be getting patients to understand that there is no “zero risk” in surgery [77].

In one study on responding to patients’ emotions in case of error using “error scenarios”, surgeons used the word “error” or “mistake” 57% of the time, took responsibility in 65%, offered apologies in 47%, and responded to patients’ emotions 55% of the time [78]. In another study, it was found that error disclosure in actual practice is much less frequent (17%), and that there is a gap between surgeons’ intentions and actual practice. The authors concluded that education in medical error management may reduce this gap [79]. The form of disclosure of an unwanted occurrence after surgery is important. According to Marks MR [80], surgeons should express “sympathy” when a complication occurs after appropriate care (maloccurrence), and “apologize” when a complication occurs due to deviation from standard care (malpractice). Surgeons can be deeply impacted by severe complications. In a systematic review of the impact of patient death on surgeons, it was found that death is a heavy psychological burden and surgeons are more exposed to developing psychological morbidity than the general population [81].

### **Technical/Technological Innovation and Patient-Surgeon Relationship**

Minor changes to surgical technique are routine and do not necessarily need to be disclosed to patients. Innovation lies somewhere between minor changes and surgical research [82]. It is the ethical responsibility of the surgeon to critically evaluate

the documentation of the innovative technology and inform the patient through separate informed consent [83]. Use of innovative technology should be based on the best interest of the patient and not on increased case volume or promotional gifts [83]. As a recent technology in medicine, Artificial Intelligence (AI) systems have several deficiencies with regard to respect for human rights and medical ethics. Lack of transparency, bias, privacy protection issues, and failure to consider patients as human beings are among those deficiencies [84]. However, physicians can use the expertise and recommendations of AI systems in their relationships with patients [67,85]. Any AI system that is in direct communication with a patient should clearly state that it is artificial [84].

### **Improving Patient-Surgeon Communication Skills**

Effective patient-surgeon communication is beneficial for both parties [86]. For patients, it provides satisfaction, adherence to treatment, and shared decision-making, all essential aspects of the patient-centered paradigm. For surgeons, good communication offers satisfaction and reduced risk of burn-out and malpractice litigation [86]. An examination of malpractice suits reveals that in a high proportion of cases, there is a communication failure on the part of a clinician who failed to understand the patient’s or family’s perspective [87]. In a national survey in Italy evaluating surgeon communication from the patient’s perspective, it was found that communication expectations of young patients in surgical settings are not being met [88]. Role modeling is the most common form of learning in patient-surgeon communication [87]. Yet in role modeling, assessing the completeness and effectiveness of acquired skills is left to the learner. Education models using “Feedback on communication skills” may be more effective [87]. Other important surgeon qualities for effective communication with patients include “self-reflection” [58], i.e. awareness of the impact of their words and actions on the patient and their family, and “emotional intelligence” [89], which is the ability to control how you express your emotions so that you can handle interpersonal relations wisely and empathetically. These qualities can be learned and enhanced.

In a prospective cohort study on surgical residents, the differences between “standard didactic conferences” and “patient-centric conferences” on the development of “patient-surgeon communication abilities” were investigated [90]. Resident confidence in surgical patient counselling grew after both types of conferences. However, residents were more confident in explaining the disease mechanisms and surgical steps involved after didactic conferences, but more confident in explaining surgical complications after patient-centric conferences. The terms “patient perspective”, “psychological effect of surgery”, and “impact on surgeon” were common in patient-centric conferences and rare in didactic conferences. The authors concluded that patient-centric

conferences complement but do not replace standard didactics [90].

### **Patient-Surgeon Communication Measure**

“Consultation and Relational Empathy Measure”, or CARE, is a tool used to evaluate practitioner empathy. CARE is a validated and statistically-valid 10-item questionnaire. Scores scale from 10 to 50, with a higher score indicating greater empathy [38]. The EORTC IN-PATSAT3 questionnaire is used to rate global relationships with the healthcare team. It is a validated and statistically-valid 32-item form that includes measures of doctors’ and nurses’ technical skills, interpersonal skills, information provision and availability, satisfaction with other hospital staff, exchange of information within the care team, waiting times, hospital access, hospital comfort, and satisfaction with care. Scores scale from 0 to 100, with a higher score reflecting a higher level of satisfaction. [77]

In another study, the patient-surgeon relationship is evaluated through an unvalidated but statistically-valid questionnaire (10 items on trust and 5 on communication) using a Likert scale (5 answers ranging from strongly disagree to strongly agree) [76].

Yet another study analyzes the impact of surgeons’ communication behaviors during clinic encounters on patients’ recommendations to family members or friends (FmoFs) using the “Professional Services Questionnaire - SIU Surgery Clinics” survey. This form consists of 10 yes/no questions, including 7 on surgeon communication behavior during visits and 1 on each of the remaining 3 questions: was the encounter a first visit, was a resident present, and would the patient recommend this physician/provider to FmoFs. It highlights three main behaviors that are essential for surgeons to incorporate in their communication behaviors: show interest in the patient as a person, educate patients about their medical condition, and ask if they have any questions [25]. Another study aims to present the benefits of a positive patient-surgeon relationship on clinical outcomes and more specifically on reducing time off from work for patients following severe injuries or musculoskeletal disorders of the upper limb. The Quality of PATient-Surgeon RELationship (Q-PASREL) tool is used by patients on long-term sick leave to evaluate the patient-surgeon relationship. This 11-item survey explores the support provided to the patient, the surgeon’s patience, the surgeon’s assessment of when the patient can return to work, the surgeon’s cooperativeness on administrative issues, the surgeon’s empathy as perceived by the patient, and the surgeon’s use of appropriate vocabulary. This tool is validated and statistically-valid. Each question is assigned 1 to 4 points. The final score is obtained by adding up the scores of the 11 items and classifying Surgeon-Patient Relationship in one of four categories: low (11 to 28), medium-low (29 to 32), medium-high (33 to 38), and high (39 to 44). The final scores were

converted to a scale of 0 to 100 [9].

### **Role of the Internet**

Surgeons are reluctant to use social media to communicate with patients. There are security issues and ethical obligations regarding patient information confidentiality [91]. Surgeons should avoid “friendship” relations with patients on social media. However, they commonly use secure messaging services (email) to communicate with patients [91,92]. General-purpose social media such as Facebook and Twitter can be helpful for marketing, generating referrals or educating patients. However, these social media networks pose practice risks such as privacy concerns, potential liability, and time consumption [93]. Concerning patients, one study showed that patients considering rhinoplasty for cosmetic reasons chose their surgeon via Internet searches, whereas patients requiring an operation for post-traumatic issues chose their surgeon through referrals by their general practitioner [94]. In another study, it was found that the choice of surgeon for knee ligament reconstruction surgery was made via referral by their general practitioner or by family or friends. The criteria for the final choice was clarity of information provided by the surgeon in the consultation, and wait-time before consultation and surgery. Social media and the hospital’s ranking had no impact on their choice [95]. Use of telemedicine in orthopedic surgery during the Covid-19 pandemic did not alter patient satisfaction relative to in-patient visits. However, surgeons tended to propose in-patient visits when in doubt due to the relative uncertainty of telemedicine [96]. Automated cell phone text messaging (SMS) was used for perioperative communication during the Covid-19 pandemic. This method helped to decrease the hospital staff workload required to keep patients’ families informed [97].

### **Discussion**

This literature review highlights a growing interest in the patient-surgeon relationship. Great strides have been made in understanding and analyzing this relationship and a review was essential. The results are clear: a good patient-surgeon relationship benefits not only patients, but surgeons and healthcare providers as well. We view the patient-surgeon relationship as distinct from the patient-physician relationship given the surgeon’s specific responsibilities and risks, and the irreversible nature of the procedures. The inclusion criteria chosen gave preference to keywords including “patient-surgeon relationship” in the article titles and excluded articles on patient-doctor and peer relationships. We considered the evidence level of the articles, though we analyzed all the resulting articles in order to offer the broadest view for understanding recent publications on the patient-surgeon relationship. It should be noted that the nature and elements of the patient-surgeon relationship are usually qualitative and most of the

articles were level 3 or 4 evidence.

The themes were chosen according to their ability to describe an everyday, practical clinical aspect of the patient-surgeon relationship. Topics were arranged in the chronological order of the patient-surgeon relationship. The factors that improve this relationship are becoming better known. They concern the quality of verbal communication and body language, and management of the emotional relationship. Relational factors relative to the patient concern the patient's family-surgeon relationship at the time of the consultation. Building trust requires that the patient sense honesty on the part of the surgeon in the best interest of the patient, and a balance of power between surgeon and patient. A high level of trust is needed for the surgeon to perform their fiduciary duties and act with "medical professionalism". However, trust is situation-dependent and may change during follow-up. Surgeons seek to keep the trust level at its peak during consultations. It is important to remember that a patient who decides to be operated on after the first consultation already has a maximum level of trust. The challenge for the surgeon is to maintain this high level of trust throughout the relationship, i.e. after surgery and during follow-up.

Factors such as a patient's specific personality traits, possible psychological conditions, secondary gains, and compensation may work against maintaining this trust level. Using Patient Centered Communication (PCC) and showing empathy to patients and their families increase both patient and surgeon satisfaction. Though the relationship between satisfaction and good objective outcomes has not been documented, there are indications that a good patient-surgeon relationship may positively affect outcome. These indications include shorter sick leaves and faster return to work [9], avoidance of overdiagnosis or overtreatment by surgeon proposal of the best diagnosis or treatment procedure [56,57], and better adherence to treatment plan. During consultations, surgeons generally use a "framing" or "abridging" strategy when communicating information on the nature of a disease, the treatment options, the prognosis, etc. Surgeons need to make sure that sufficient useful information is communicated and assimilated by the patient. The patient needs a realistic expectation of outcome in order to proceed to Shared Decision-Making (SDM). Standard and reliable patient decision aids may be helpful. Patients should have enough time to assimilate the information before making a decision.

The Shared Decision-Making (SDM) and informed consent procedures have enabled a standardized relationship process. SDM is usually in the form of Participative Decision-Making because patients usually prefer to be guided by their surgeon. Clearly, the two parties are not equally qualified to propose options. Patient Reported Experience Measurement (PREM) instruments

are currently being developed. They can be used to measure and compare the quality of various aspects of a relationship. If the expected objectives are not achieved, or in the event of a postoperative complication, the patient-surgeon relationship may be seriously impacted. Preoperative communication, adjusting patient expectations, and explaining common post-surgery complications and feelings may reduce anxiety if complications actually occur. Staying calm, continuing to communicate positively, expressing empathy (for expected or usual complications) and apologizing (in case of medical error) can help to rebuild trust and ensure continued treatment. Regarding use of the Internet to communicate with patients, contrary to the preconception that the role of the Internet is expanding in all forms of communication, several studies found that surgeons prefer secure messaging services such as email, though they have security and liability concerns relative to social media [91-93]. Patients often choose their surgeon based on real-world reputation and word of mouth, although some patients use the Internet to choose a surgeon [94,95].

Our study's limitations include the low degree of evidence of most publications on the subject: 72% of articles were level 3 or 4 evidence. This is a consequence of the qualitative nature of many of the articles. Another limitation is the choice of themes relative to the patient-surgeon relationship, which was based on the author's preference. There are overlaps between themes. For example, "trust" appears in several themes. These overlaps may be due to the continuous nature of the patient-surgeon relationship.

## Conclusions

The patient-surgeon relationship is dynamic, and time- and situation-dependent. Its framework is described through medical ethics. An optimum patient-surgeon relationship requires education, training, and experience for the surgeon.

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