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An integrative model of shared decision making in medical encounters

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Abstract

Objective: Given the fluidity with which the term shared decision making (SDM) is used in teaching, assessment and research, we conducted a focused and systematic review of articles that specifically address SDM to determine the range of conceptual definitions.
Methods: In April 2005, we ran a Pubmed (Medline) search to identify articles published through 31 December 2003 with the words *shared decision making* in the title or abstract. The search yielded 681 citations, 342 of which were about SDM in the context of physician–patient encounters and published in English. We read and reviewed the full text of all 342 articles, and got any non-redundant references to SDM, which yielded an additional 76 articles.
Results: Of the 418 articles examined, 161 (38.5%) had a conceptual definition of SDM. We identified 31 separate concepts used to explicate SDM, but only ''patient values/preferences'' (67.1%) and ''options'' (50.9%) appeared in more than half the 161 definitions. Relatively few articles explicitly recognized and integrated previous work.
Conclusion: Our review reveals that there is no shared definition of SDM. We propose a definition that integrates the extant literature base and outlines essential elements that must be present for patients and providers to engage in the process of SDM.
Practice implications: The integrative definition of SDM is intended to provide a useful foundation for describing and operationalizing SDM in further research.

Keywords: Shared decision making; Physician–patient relationship

1. Introduction

Decisions about tests, medications, procedures, referrals, or behaviors are an integral component of many medical encounters, and shared decision making (SDM) is frequently advocated in teaching and research about provider–patient interaction. However, the concept of SDM has been variably, and often loosely, defined. Some have acknowledged confusion surrounding the term [1–4], but recognition of the problem has not yet generated a model of SDM that integrates previous work. The lack of synthesis is problematic for several reasons. First, inconsistent conceptual definitions lead to inconsistent measurement of SDM [1,4,5]. Second, the lack of a core definition of SDM complicates efforts to identify the relationships between SDM and outcome measures. Third, variable instantiations of SDM definitions make comparisons across studies difficult, if not impossible.

In terms of models of the provider–patient relationship, SDM is often positioned as a ''middle ground'' between paternalism (i.e., physicians make the decisions) and informed choice (i.e., patients make the decisions) [4,6–8]. In that context, there is considerable overlap between SDM and constructs with similar connotations, such as informed decision making [9], concordance [10,11], evidence-based patient choice [12,13], enhanced autonomy [14], and mutual participation [14]. There is a duality to the way SDM has been positioned within the proliferation of definitions. For instance, it has been described as both a

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component of patient-centered care [15,16] and an extension of patient-centered medicine [17,18]. It has also been construed as the appropriate process for informed consent on one hand [19], and clearly distinguished from informed consent on the other [20–26].

Similarly, as noted by Charles et al. [1], models of SDM vary in the way they position the roles and responsibilities of each party. For example, Towle and Godolphin [27] suggested competencies for both physicians and patients, whereas others have placed more responsibility on the physician to elicit or respond to patients' views [28]. There has also been increasing attention to patients' preferred role in decision-making, with some asserting that for SDM to occur, patients must share equally in the decision-making process [4,7], while others contend that patients' role preferences be discussed and accepted [28].

1.1. Purpose of study

Given the fluidity with which the term *shared decision making* is used, we conducted a focused and systematic review of articles that specifically address SDM to determine the range of conceptual definitions therein. We sought to identify the most frequently invoked elements, qualities, and citations used to define SDM, with the goal of integrating the extant literature base to offer a conceptually sound and clinically relevant model of SDM.

2. Methods

In April 2005, we conducted a Pubmed (Medline) search to identify articles published through 31 December 2003 with the words *shared decision making* in the *title* or *abstract*.

2.1. Primary search strategy

The plan and procedure of our primary search strategy were designed to capture articles in the medical literature that clearly focus on shared decision making. We reasoned that if the words *shared decision making* appeared in the title or abstract, then SDM was likely to be a key topic or theme of the paper. While we were aware that the search strategy might miss some articles that addressed SDM in the text only [9,29–36], our intention was to examine articles that clearly purport to be about shared decision making. In addition, we were aware that some articles might not appear in Medline even if they include the words *shared decision making* in the title or abstract (e.g., Robert Kaplan's 1997 Presidential Address to the Society of Behavioral Medicine [37]) but maintained the straightforward search strategy in an effort to facilitate reproducibility. Similarly, we focused on articles published in English because their accessibility to the broad scientific community enhances reproducibility. This search yielded 681 articles that included the words *shared decision making* in the title or abstract through 31 December 2003. At least two members of the study team reviewed the abstracts. As illustrated in Fig. 1, the next step in the review process was to drop any article that was not in English ($n = 49$) or in which the words *shared decision making* were not in the context of the provider–patient relationship ($n = 290$). We obtained the full text of all 342 articles that met the criteria for retention, including any articles that did not have an abstract (e.g., editorials).

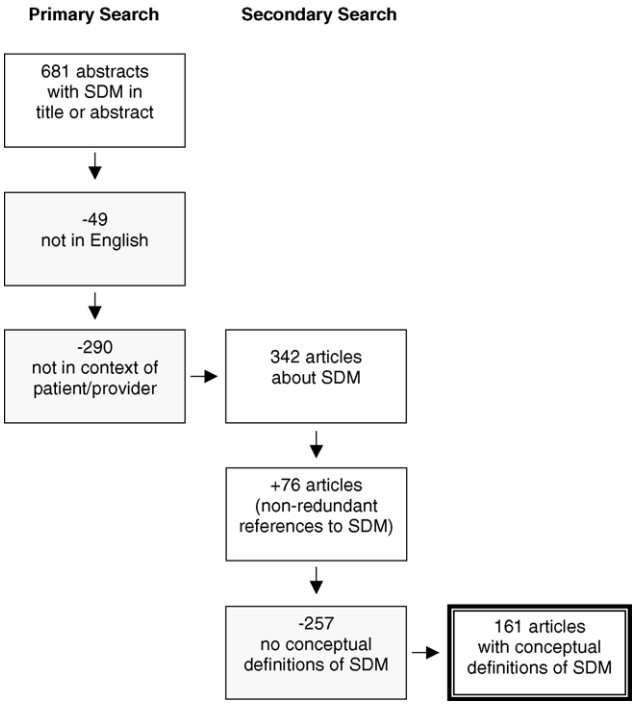


Fig. 1. Search strategy and results.

2.2. Secondary search strategy

We read and reviewed the full text of all 342 articles, and got any non-redundant references to SDM whether the primary article included references within a conceptual definition of SDM or simply cited other articles after mentioning SDM. Consistent with our primary search strategy's focus on articles published in medically oriented journals, we did not obtain any referenced books, book chapters, or unpublished information such as course materials or technical reports. We conducted one iteration of this process, which yielded an additional 76 articles for subsequent coding (see Fig. 1).

2.3. Coding of conceptual definitions

Fig. 1 shows that our primary and secondary search strategies generated a total of 418 articles, 257 (61.5%) of which mentioned SDM without defining the term. Our coding of elements, qualities, and citations focuses on the remaining 161 articles that included a conceptual definition of SDM.

2.3.1. Elements and qualities of SDM

Each article was read by at least two members of the research team and sections that mentioned SDM were marked. We divided any definitions of SDM into units, which were generally delineated by conjunctions or punctuation. Then, based on a preliminary review of the unitized definitions, we developed coding rules and a coding sheet that included a list of mutually exclusive and exhaustive concepts (e.g., information exchange; patient preferences) plus an ''other'' category. Some of these coding categories represent elements of SDM (i.e., specific observable behaviors) while others describe qualities of SDM (i.e., relatively general characteristics). Conceptual definitions were coded by both authors, and the few discrepancies were resolved by reviewing together the articles in question. The specific content of any units coded as ''other'' was listed on the coding sheet; we created new coding categories for redundant ''others''.

2.3.2. Citations about SDM

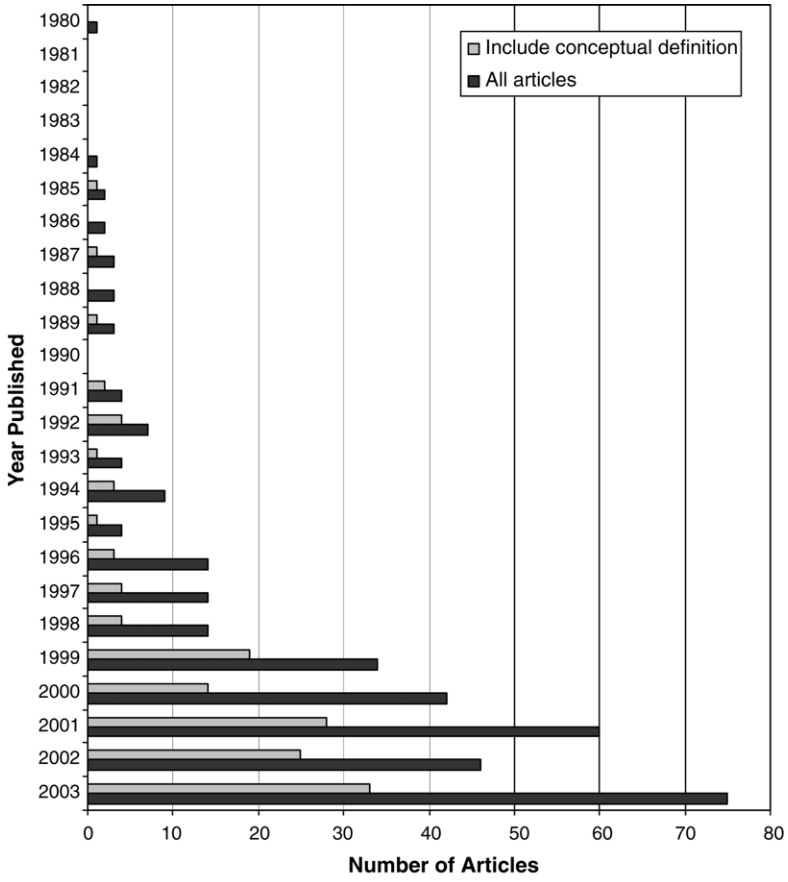
We also recorded all citations regarding SDM within the conceptual definitions to track how frequently previously published articles and models were referenced. Our goal was to determine the extent to which conceptual definitions recognized, and were informed by, previous work.

3. Results

Of the 418 articles examined, 161 (38.5%) had a conceptual definition of SDM; the primary search strategy yielded 144 (42.1% of 342) articles with conceptual definitions [1–7,10–18,21,23–28,38–158], and the secondary search strategy yielded 17 (22.4% of 76) more [8,19,22,159–172]. Overall, 47.2% of the articles were classified as reviews/essays, 38.5% as empirical research reports, and 14.3% as editorials/commentaries.

3.1. Trajectory of the literature on SDM

The term ''shared decision making'' was first defined by the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral



*All articles** = results of the primary search strategy, which captured articles that were indexed in Pubmed (Medline) through 31 December 2003, included the words *shared decision making* in the title or abstract, and met the following two inclusion criteria: (1) in the context of patient-provider encounters; (2) published in English. N = 342.

Fig. 2. Growth in Pubmed-indexed articles on SDM.

Research in its report *Making Health Care Decisions*, which focused on informed consent [19]. This report was published in 1982, and cast SDM as a process based on mutual respect and partnership:

It will usually consist of discussions between professional and patient that bring the knowledge, concerns, and perspective of each to the process of seeking agreement on a course of treatment. Simply put, this means that the physician or other health professional invites the patient to participate in a dialogue in which the professional seeks to help the patient understand the medical situation and available courses of action, and the patient conveys his or her concerns and wishes. This does not involve a mechanical recitation of abstruse medical information, but should include disclosures that give the patient an understanding of his or her condition and an appreciation of its consequences (p. 38). Shared decision making requires that a practitioner seek not only to understand each patient's needs and develop reasonable alternatives to meet those needs, but also to present the alternatives in a way that enables patients to choose one they prefer. To participate in this process, patients must engage in a dialogue with the practitioner and make their views on well-being clear (p. 44).

This seminal report was found through our secondary search strategy (i.e., it was not indexed in Pubmed because it was issued as a governmental publication rather than a journal article). Fig. 2 focuses on articles that were indexed in Pubmed, and illustrates that relatively few included the concept of SDM until the late 1990s, when separate articles by Charles et al. [4], Coulter [52], and a report by Towle [173] appear to have triggered increased interest in, and publications about, SDM.

3.2. Concepts of SDM evident in the literature

Table 1 includes a list of elements and qualities that appeared in at least 10% of conceptual definitions of SDM. Of these 20 categories, only patient values/preferences (67.1%) and options (50.9%) appeared in more than half of the conceptual definitions. Eleven additional concepts are not listed in Table 1 because they appeared in fewer than 10% of definitions: involves at least two people (9.9%); recognize patient autonomy (8.7%); provide a comfortable environment (8.1%); arrange follow-up (6.8%); ascertain preferred format for information (6.2%); all parties have a legitimate interest in the decision (5.0%); uncertainty (5.0%); patient should understand enough to participate (3.7%); both physician and patient are experts (3.1%); division of labor between patient and physician (2.5%); a decision may require more than one visit (1.9%).

3.3. Prominent conceptual definitions in the literature

We also examined frequency of citations in order to identify the most prominent models of SDM, and Table 2 lists the authors of all models cited by more than 5% of articles that include conceptual definitions. Charles et al. [4] article was the most frequently cited, although it only appeared in 21.1% of the articles with conceptual definitions, illustrating that relatively few articles explicitly recognized and integrated previous work. Indeed, of the 161 articles with a conceptual definition of SDM, 56 (34.7%) did not cite any models. Within the most commonly cited articles, there has been a transition from identifying discrete characteristics of SDM [4] to focusing on process and outlining relatively sequential models [5,6,27,28,65,67,173].

Table 1
Concepts used in definitions of SDM[a]

67.1%	Patient values/preferences
50.9%	Options
46.0%	Partnership
37.3%	Patient participation
36.6%	Patient education
35.4%	Benefits/risks (pros/cons)
31.7%	Deliberation/negotiation
30.4%	Doctor knowledge/recommendations
29.2%	Mutual agreement
26.7%	Process/stages
23.6%	Middle ground
23.0%	Information exchange
18.0%	Make or explicitly defer decision
16.8%	Present evidence
13.0%	Define/explain problem
13.0%	Define roles (desire for involvement)
11.8%	Unbiased information
11.8%	Check/clarify understanding
11.2%	Flexibility/individualized approach
10.6%	Mutual respect

[a] Categories mentioned in at least 10% of articles with conceptual definitions are listed.

4. Discussion and conclusion

Our review reveals that, overall, there is no shared definition of *shared decision making*. This is clearly the case within the set of articles that included a conceptual definition: We identified 31 separate concepts used to explicate SDM, only two of which appeared in more than half of the conceptual definitions. The lack of coherence looms even larger because 60% of articles that purport to focus on SDM failed to include any conceptual definition at

Table 2
Most frequently cited definitions of SDM[a]

21.1%	Charles et al. [4]
9.9%	Towle and Godolphin [27]; Towle [173]
9.9%	Elwyn et al. [5,6,28,65–67]
8.7%	Charles et al. [7,8]
6.2%	President's Commission [19]
5.0%	Coulter and co-workers [52,54,162]

[a] Groups cited in at least 5% of articles with conceptual definitions are listed.

all. Equally troubling is the low frequency with which authors writing about SDM recognized and cited previous work in the area; fully one-third of articles with conceptual definitions failed to cite any other models. This proliferation of definitions can limit the productivity of research on SDM.

4.1. Discussion

4.1.1. Toward an integrative model

Thus, we propose an integrative model of SDM that builds upon the extant literature base. Our goal was to develop a definition that is conceptually sound, useful for future research, and applicable to clinical practice. We formulated this definition by taking the list of SDM elements (i.e., specific observable behaviors) and qualities (i.e., relatively general characteristics) listed in Table 1, and separating the elements into two groups: essential and ideal. More specifically, essential elements must be present for patients and providers to engage in the process of SDM; ideal elements may enhance the decision-making experience, but are not considered necessary for SDM to take place. We then identified which elements and qualities were positioned as central components of SDM within the prominent conceptual definitions listed in Table 2 (i.e., featured in focused paragraphs or lists). Finally, we added two elements: one that was cited in fewer than 10% of the articles but evident in two of the relatively prominent models [5,6,27,28,65,67,173], and one that seems to be novel.

Table 3 displays this framework and lists the essential elements that comprise our integrative definition, illustrating patterns of emphasis in prominently cited models. In viewing the table, it is important to note that discussion of elements may be initiated by either physicians or patients. Accordingly, our choice of the term ''elements'' was a deliberate attempt to avoid placing sole responsibility on either party for displaying certain ''competences'' or ''competencies'' [81].

4.1.2. Essential elements of SDM

In order for SDM to occur, patients and providers must first define and/or explain the problem that needs to be addressed. That discussion will likely lead to a presentation of options: Physicians should review options, if options exist, and patients should raise options of which they may be aware. Physicians and patients should discuss the pros and cons of options raised, particularly because they may have different perspectives on the relative importance of benefits, risks, and costs, including convenience and opportunity cost. These perspectives become evident through explication of patient values and preferences – including ideas, concerns, and outcome expectations – as well as physician knowledge and recommendations in the context of the decision at hand. Discussion of patients' ability, or self-efficacy, to follow

Table 3
Essential elements, ideal elements, and general qualities of SDM: emphasis in prominently cited models[a]

	President's Commission [19]	Charles et al. [4,7,8]	Coulter et al. [52,54,162]	Towle and Godolphin [27,173]	Elwyn et al. [5,6,28,65–67]
Essential elements					
Define/explain problem	X		X		X
Present options	X	X	X	X	X
Discuss pros/cons (benefits/risks/costs)		X	X	X	X
Patient values/preferences	X	X	X	X	X
Discuss patient ability/self-efficacy[b]					
Doctor knowledge/recommendations	X	X			
Check/clarify understanding		X			X
Make or explicitly defer decision		X	X	X	X
Arrange follow-up[c]				X	X
Ideal elements					
Unbiased information	X	X			X
Define roles (desire for involvement)		X	X	X	X
Present evidence		X	X	X	
Mutual agreement	X	X	X	X	X
General qualities					
Deliberation/negotiation	X	X		X	
Flexibility/individualized approach	X	X	X		X
Information exchange		X			
Involves at least two people		X		X	
Middle ground		X			
Mutual respect	X		X		
Partnership	X	X	X	X	
Patient education		X			X
Patient participation	X	X			X
Process/stages	X	X	X	X	X

[a] Unless otherwise indicated, this table includes categories from Table 1.
[b] This category was added by the authors.
[c] This category was cited in fewer than 10% of articles, so did not appear in Table 1.

through with a plan (e.g., test, medication, procedure, behavior change, referral) [174–178] is a critical – though often overlooked – component of assessing the viability of options. Throughout the process, both parties should periodically check understanding of facts and perspectives, providing further clarification as needed. The importance of checking and clarifying understanding has been reinforced by research on health literacy [179,180]. Of course, decisions are not always ''made'' when problems are first discussed; they may be explicitly deferred for a later time (e.g., pending discussion with members of the family and/or healthcare team) [4,7,18,93,154]. Thus, it is essential that physicians and patients arrange follow-up to track the outcome of decisions that have been made or reach resolution on those that have not.

There is considerable and intentional overlap between this integrative definition and previously published work. At least one of these elements is discussed in nearly all of the articles with conceptual definitions of SDM [1–8,10–19,21,23,24,26–28,38–49,51–56,58,59,61,62,64–69,72,74,76–78,81–86,88,90–97,101,102,105–108,110,113–117,120,121,123,124,126–131,133–135,139,141,142,144–146,148–150,152–160,162–165,171,172]. Taken together, these essential elements are rooted in the transactional model of communication, which holds that messages are filtered through different frames-of-reference, or life-spaces [181], and that people involved in an interaction simultaneously influence one another.

4.1.2.1. Self-efficacy. A brief overview of self-efficacy is warranted, given our suggestion that discussing patients' ability to follow through with a plan be considered an essential element of SDM. The term self-efficacy refers to an individual's own perceived ability to perform a specified behavior or set of behaviors. This is a construct central to Social Cognitive Theory, a variant of social learning theory that focuses on the continuous, reciprocal interaction between cognitions, behavior, and environment [174,175]. According to Social Cognitive Theory, behaviors are determined to a large extent by the outcome and efficacy expectations related to enacting them. Outcome expectations refer to an individual's perceptions about whether behaviors will lead to certain outcomes (e.g., ''taking this medicine every day will decrease my cholesterol'', ''eating less salt will help reduce my blood pressure''). Efficacy expectations, often termed self-efficacy, refer to the individual's beliefs about whether he or she can successfully enact the behavior in question (e.g., ''I can take this medicine every day'', ''I can eat less salt''). Individuals with greater perceived confidence with regard to a particular task, skill, or action may be more likely to engage in the behavior. Self-efficacy has been investigated in a variety of contexts and settings; it predicts the likelihood of initiating communication [182], adjusting to illness and treatment [183–187], adhering to medication treatment plans [188–190], and engaging in recommended health behaviors [191–193]. In many ways, the rationale for incorporating a patient's efficacy expectations parallels the argument for discussing patient preferences and values: both provide important perspective regarding acceptability of the options at hand.

4.1.3. Ideal elements

Our integrative model of SDM is restricted to the essential elements because it is intended to encompass different clinical contexts, types of decisions and levels of involvement [6]. Some elements are considered ''ideal'' because they may enhance the process of SDM but are more applicable to some encounters than others. In other words, they are not always relevant or necessary for SDM to take place [9].

For instance, if it is indeed possible to deliver unbiased information, it may only be appropriate if the patient does not want the physician's opinion [7,8,43,54]. Defining roles is another element considered ideal, particularly in light of Elwyn et al.'s argument that ascertaining role preference may be an implicit process [6]. Many authors have suggested that presentation of evidence is a key component of SDM [7,11,12,15,21,27,38,51,52,56,104,107,110,127,128,130,1-41,142,144,146,149,157], but we feel this must be considered an ideal element because adequate evidence is available for only a limited number of clinical decisions. Finally, while it has been suggested that a mutually agreed upon course of action is the appropriate result of SDM [27,52], a difference of opinion between physician and patient may still exist at the end of the SDM process [7,14,21]. We recognize that mutual agreement is highlighted in each of the prominent models, but believe it is properly positioned as an ideal rather than a necessity.

4.1.4. General qualities

Extant conceptual definitions invoke several relatively general characteristics to describe SDM: deliberation/negotiation; flexibility/individualized approach; information exchange; involves at least two people; middle ground; mutual respect; partnership; patient education; patient participation; process/stages. While extremely useful in terms of providing an overall sense of SDM, these qualities do not highlight specific behaviors that readily lend themselves to research or practice [81]. However, they do raise issues that can help frame future research. For instance, the quality of ''flexibility/individualized approach'' suggests not only flexibility with respect to individual patients, but flexibility over time. In contexts such as cancer care and chronic disease management, physicians and patients may revisit decisions as circumstances change. Attention to this reality of everyday clinical practice sets the stage for longitudinal research on SDM.

4.1.5. Can SDM be shared equally?

It is important to recognize that, while nearly half of the conceptual definitions invoked the concept of ''partner-

ship'', it is unlikely that decision-making will be shared equally in SDM. It may be helpful to envision the degree of sharing as a continuum with physicians leading the discussion and making decisions at one end, patients leading the discussion and making decisions at the other, and truly shared discussion and decision-making in the middle [194]. The nature of SDM will be qualitatively different as encounters depart from the midpoint: As illustrated in Fig. 3, whichever party leads the discussion, the degree of sharing increases as input from the other party increases (i.e., whether the other's acknowledgement, agreement, or opinion regarding the decision is either sought or offered). The balance of medical knowledge and social power in the provider–patient relationship is nearly always tipped toward physicians, and physicians often take a leadership role with respect to decisions in medical encounters [19]. Engaging in SDM does not require that physicians relinquish decision-making authority [52]. Indeed, we contend that SDM can occur even if patients ask physicians to take decision-making responsibility, provided that the essential elements are present.

4.1.6. SDM and outcomes

Our study focuses on defining the concept of SDM, which is the prerequisite to addressing the question of whether SDM has positive outcomes. The answer to this question (i.e., empirical evidence) will likely determine how strongly the concept of SDM will be advocated and adopted in the years to come. Work by Greenfield and co-worker's research team links patient participation in medical care to improved health outcomes for patients with chronic illness [195–197]. In terms of measuring tangible and important outcomes, these studies offer a gold standard for research on patient participation. But they do not necessarily provide evidence about SDM because patient participation and SDM are not isomorphic. That is, patient participation in these studies stems from coaching patients to ask questions, negotiate

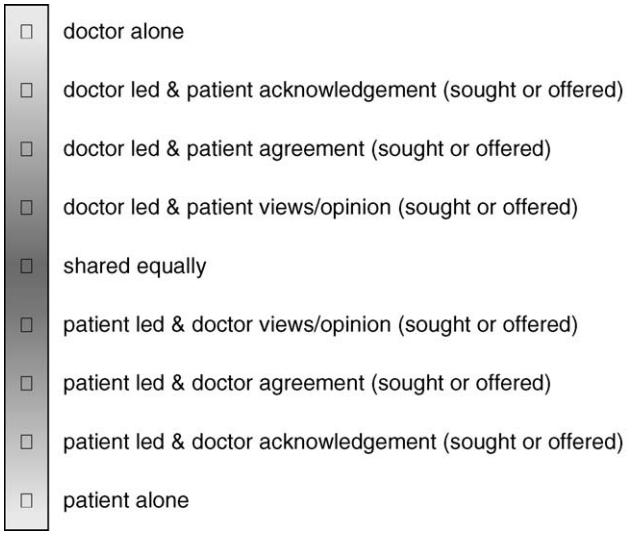


Fig. 3. Degree of sharing.

medical decisions, and overcome barriers such as embarrassment and anxiety in the service of taking a more active role in their care [197]. This is a complex intervention, the components of which are difficult to disentangle. Future studies should build upon this base, focusing clearly on the extent to which implementing SDM improves health outcomes.

4.2. Conclusion

A hallmark of shared decision making, that patients and providers have different – but equally valuable – perspectives and roles in the medical encounter was encapsulated in the title of a book published 20 years ago, *Meetings between Experts* [198]. This deceptively simple characterization provides a line of continuity throughout much of the literature on SDM, from the early conceptual definition in the President's Commission report through work published much more recently [14,17,19,116]. That said, the burgeoning interest in SDM requires a more clearly articulated and widely shared definition of the concept. Thus, we offer a definition that integrates the extant literature base while differentiating between essential elements (i.e., must be present for patients and providers to engage in the process of SDM) and ideal elements (i.e., may enhance the decision-making experience, but are not considered necessary for SDM to take place). There is considerable and intentional overlap between this integrative definition and previously published work.

4.3. Practice implications

While SDM has received considerable attention in the context of difficult decisions (e.g., cancer treatment), it is equally important to study communication and decision-making in relatively mundane contexts such as primary care [9,18,19,27,159,199]. The integrative definition is intended to provide a useful foundation for describing and operationalizing SDM for further research on the meetings between experts in both pivotal circumstances and everyday clinical practice.

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