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SYSTEMATIC REVIEW

Educational interventions for shared decision making and the role of patient agency: A Systematic Review [version 1; peer review: 1 approved with reservations]

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Abstract

Background: Shared decision making is critical to patient-centered care and yet there is limited consensus on effective teaching approaches for training physicians in this domain. As a collaborative process in which the patient and physician co-create a decision, patient and relational agency may be important contributors and studies with patient-reported outcomes may identify successful approaches and determine gaps in pedagogy. The authors conducted a systematic review of educational interventions for shared decision making, focusing on patient-reported outcomes and consideration of agency. **Methods:** Ovid MEDLINE, Embase, and Web of Science were searched for studies describing educational interventions with patient-level outcomes published between January 2000 and January 2020. Articles were excluded if they were not in English, included only patient interventions, or reported only physician outcomes. Quality assessment was performed using the Medical Education Research Study Quality Instrument (MERSQI). Data about the educational methods used were extracted and included studies were assessed for quality. Thematic analysis was performed to identify the potential role of agency. **Results:** 26 articles were identified describing 17 unique studies. Educational interventions were diverse in duration and content, with multiple components. Three-quarters of studies used role play or simulated patients and 82% included tools to facilitate shared decisions. Although no articles explicitly discussed facilitating agency as a component of the intervention or as an outcome, one qualitative study demonstrated themes of patient and relational agency. **Conclusions:** Educational interventions included small group discussion, decision aids, role play, and simulated patients, and improved a range of patient outcomes, but our study included only studies including practicing physicians,

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limiting applicability to trainees and other health care providers. Interventions have not included explicit instructional design around agency, but qualitative analyses demonstrated interventions may facilitate agency and shared decision making. Future instructional strategies should consider the complexity inherent in co-constructing decisions.

Keywords

shared decision making, educational interventions, agency, cultural historical activity theory (CHAT)

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Introduction

Shared decision making is critical to patient-centered care, and yet there is limited consensus on how to most effectively teach it to health professionals. Although numerous educational interventions have been developed, many have not been methodically studied nor described in the literature^{1,2}. In a recent systematic review of published studies, Muller et al. found great variation in the interventions, outcome measures, and conclusions of the 41 included articles³. Because their analysis did not allow matching training components with outcomes, conclusions were limited for the most effective strategies, further, they noted that most of the published studies reported on provider-reported outcomes over observed or patient outcomes³. Because shared decision making is a collaborative process in which the patient and provider co-create a decision based on the patient's preferences and values in addition to scientific evidence, we propose that in-depth analysis of studies with patient-reported outcomes may help us better identify successful approaches and determine gaps in pedagogy.

Focusing on studies with patient outcomes may also allow for closer examination of the role of agency in shared clinical decisions. We suggest that shared decision making requires not only a patient with sufficient agency to participate in the collaborative process, but a clinician whose actions enhance relational agency in the encounter. One commonly cited definition of agency, by Giddens, is an individual acting intentionally, with the capacity to act on his or her intentions, and having the power to create a new event or intervene in an existing event⁴. According to Giddens, individual agency can be shaped, facilitated, or constrained by social structures. The clinical encounter is such a social structure, made up of the actions of the physician, the clinical and patient support tools, the culture, environment, and expectations. Relational agency has been defined as "the capacity to work with others to expand the object that one is working on by bringing to bear the sense-making of others"⁵. By examining relational agency of a physician and patient dyad, we can better understand how a shared decision can be accomplished.

Despite the apparent importance of agency to shared decision making, it is unclear if educational interventions address the roles of patient and relational agency. Thus, we sought to answer the questions: How is shared decision making taught to physicians and, secondarily, in what ways, if any, is the concept of agency addressed in these educational efforts?

Methods

We conducted a systematic review of studies evaluating educational interventions for physicians that aimed to increase shared decision making in the clinical encounter, as measured by patient-level outcomes. Our review followed guiding principles of conducting systematic reviews in medical education⁶ and is reported in accordance with Preferred Reporting Items for Systematic Reviews and Meta-analyses⁷. (See PRISMA Checklist: <https://zenodo.org/record/5029150#.YNTs6ndKicY>)⁸.

Data collection

We hand-searched a 2012 environmental scan of shared decision making training and its 2016 update^{1,2} and identified relevant articles. Leveraging these results, we conducted searches of Ovid MEDLINE, Embase, and Web of Science limited to studies published between January 2000 and January 2020. A medical librarian created search strategies for each database that utilized combinations of keywords and controlled vocabulary terms. (See extended data <https://zenodo.org/record/5029150#.YNTs6ndKicY>)⁸. Searches were limited to English-language publications and conducted on January 29, 2020. We also hand searched references of all included articles and key review articles. All citations were managed in EndNote, including the removal of duplicate citations.

Inclusion and exclusion criteria

We included studies that described educational interventions for physicians that included patient outcomes (objective health outcomes or patient-reported outcomes). Articles were excluded if they were not in English, included only patient interventions, or reported only physician outcomes.

Two authors (CW and LM) independently screened all titles and abstracts using Rayyan (<https://www.rayyan.ai>), a web-tool optimized for data screening. Screening was based on the above inclusion/exclusion criteria. Upon completing the screening, LM and CW discussed any conflicts until consensus was reached. In instances in which CW and LM did not reach consensus, the full text was reviewed and if appropriate included.

Data extraction

CW, EH, and LM independently extracted data from the included articles, using a form that was created based on our research question and examples from the literature. The data extraction form was operationalized in Excel. CW, a physician and doctoral student in a Health Professions Education program, extracted data from all full-text articles. LM and EH, both HPE researchers, each extracted data from half of the articles. Discrepancies were resolved by discussion. If multiple articles reported different findings from the same study, data extraction occurred from individual studies, but they were grouped together for future analysis. Upon completion of extraction, the authors met to reconcile their coding.

Data extracted included the context of the intervention, clinical area, physician-type targeted, theories/approaches used, educational intervention(s), instruments or measures used (delineated as patient and provider outcomes) and outcomes (including effect of intervention). We identified any discussion of agency in either the intervention specifically or in the analysis or discussion of results.

Because of the complexity of shared decision making, we drew on Cultural Historical Activity Theory (CHAT) as a framework. We propose that CHAT allows examination of interacting activity systems that can impact shared outcomes.

An activity system in CHAT is made up of a subject (person engaged in the activity), tools (symbolic or physical objects that facilitate accomplishment of a defined objective), and object (purpose of the activity), as well as rules, community, and division of labor⁹. Any components of the intervention, results, or discussion that appeared to be aligned with elements of CHAT were extracted from each study.

Quality assessment

Quality assessment of the included studies was performed, with an understanding that these studies were diverse in methodology. All articles in the final review underwent evaluation using the Medical Education Research Study Quality Instrument (MERSQI)¹⁰. CW and LM independently scored each of the included studies. For studies with more than one article, one with quantitative patient outcomes was used for rating purposes. Any discrepancies were discussed and resolved by consensus. If disputes remained, EH served as an adjudicating reviewer. Reliability kappa coefficient scores for the MERSQI used in other systematic reviews of educational interventions have ranged from 0.72 to 0.99^{10,11}. We utilized categories of quality from previous studies: 4.5 to 8.5 is considered low quality, 9.0 to 13.0 is moderate, and 13.5 to 18 is considered high quality¹². Quality assessment was performed for studies with quantitative data, which made up a majority of the studies.

Data analysis

We tabulated the key characteristics of the included studies (e.g., intervention modality, learner and patient population, assessment instruments). To identify the presence of agency within the interventions, thematic analysis was performed on all studies with a focus on the intervention and results.

While we remained open to all elements related to agency in our thematic analysis, we used CHAT as a framework for coding. Codes were created for each of the elements of activity systems and for tensions within and between activity systems. Codes were applied to findings and representative quotes for each study. A code for patient agency was also applied to intervention descriptions and results and authors' interpretations of study findings. Codes were organized into related areas and used to identify themes.

Results

Our search yielded 2879 articles after duplicates were removed. After title/abstract review, we identified 34 for full-text review, of which we excluded 8. We also reviewed reference lists of 10 articles marked as key background/review articles and the 26 remaining articles. In total, we identified 26 articles^{13–38}, describing 17 unique studies meeting the inclusion criteria for our review. [Figure 1](#) diagrams our review process. In this section, we first report study characteristics and describe the educational interventions. We then turn attention to elements of shared decision making and agency which we have mapped to CHAT.

[Table 1](#) includes characteristics of the included studies. From the included studies, 14 (82%) were randomized controlled trials (RCT), with the majority characterized as cluster RCTs. Six

studies were conducted in Germany, four in the United States, three in the Netherlands, and the remainder in Canada (2), the United Kingdom (1), and Mexico (1). Most studies (n=12; 71%) were conducted with primary care physicians and the remainder were specialists or unspecified. All studies received external funding and were found to be of high quality based on MERSQI scores ranging from 13.5 to 18.

Educational interventions

Educational interventions described in the studies were diverse in duration and content (See [Table 2](#)). All interventions involved more than one method to deliver the intervention, including a mix of: lecture/video/web-based presentation, group discussion, role play or consultations with simulated patients, self-reflection, feedback on performance (either direct observation or in visit with simulated patient), and tools for interaction (for the physician, the patient, or both). All studies used some form of lecture, video, or web-based didactics. Group discussion was included in 6 (35%) studies, feedback on performance in 11 (65%), and 5 (29%) studies explicitly included self-reflection.

The majority of studies (n=13; 76%) utilized role play or simulations within their educational interventions, although the approach differed between studies. We describe two of the interventions as examples of disparate approaches with different study populations, however, it should be noted that they are not representative of all interventions. One of the earliest studies in this review was a cluster RCT that utilized two workshops with didactics that focused on shared decision-making competencies^{13–16}. A second group received a similar intervention focused only on risk communication skills and a third group received both interventions (combined interventions). The primary care physicians then participated in consultations with simulated patients and received feedback on their performance in at least one of the consultations with simulated patients^{13–16}.

Another study compared radiation oncologists before and after participating in two plenary sessions (3-hours each), group discussion, trained patient simulators, and three videotaped real patient consultations with a 1-hour feedback session on each²⁰. Training included activities to emphasize components of shared decision making and outcomes related to communication of the physician participants before and after training²⁰.

Most studies (n= 14; 82%) included tools that the physician and/or patient could utilize to assist with decision making. For example, decision aids were paper-based booklets or web-based applications that provide information about health options and were designed to help patients clarify their personal preferences and values. Tools were directed at physicians in 14 (82%) studies and at patients and physicians in 6 (35%) studies; the majority were designed to be used during the clinical interaction.

Measures and instruments

Although there were significant differences in how outcomes were assessed ([Table 2](#)), a few measures were utilized in multiple studies. The observing patient involvement in decision making

Figure 1. Literature Search and Study Selection Process. Literature search and study selection process for a systematic review of the literature, published between January 2000 and January 2020, on educational interventions for health professionals that aimed to increase shared decision making in the clinical encounter, as measured by patient-level outcomes. The study followed the PRISMA guidelines for conducting a systematic review.

(OPTION) scale or an adapted version (e.g., OPTION 5), was used in five studies^{16,17,26,31,34,37,38}. The extent to which providers were observed involving patients in shared decision making was considered an outcome in all these studies³⁹.

The Roter scale, from the Roter Interaction Analysis System (RIAS) is another measure utilized in three studies^{17,20,23}. RIAS is a validated tool for coding medical dialogue, notable for its ability to code multiple speakers and in its flexibility in coding subcategories and content-specific topics of interest⁴⁰. Examples of outcomes included numbers of utterances that represent physician support and encouragement of shared decisions and patient involvement.

Outcomes

Outcomes for each of the studies are described in Table 2. The majority of studies demonstrated improvement in measures

of shared decision making that were used. However, because of the wide variation in outcome measures used between studies, comparing effectiveness of interventions between studies is a challenge. We highlight a few of the outcomes. For example, studies that utilized the OPTION scale^{16,17,26,31,34,37,38} all demonstrated improvement in patient involvement to some extent. Those that used the Roter scale demonstrated improved shared decision making behaviors and patient participation with the intervention^{17,20,23}.

Studies in which role play was part of the intervention generally demonstrated an improvement in patient participation during the clinical encounter as reported by physician or observed by external rater^{16–18,20,23,24,31,35,37,38}. Of these studies, one had a discrepancy between the patients' perception of shared decision making and that reported by the physician or observed³⁵. One study demonstrated a discrepancy between the physicians'

Table 1. Characteristics of Included Studies in a Systematic Review of Shared Decision Making Educational Interventions.

Author(s), year	MERSQI Score	Type of study	Setting	Learner characteristics	Patient characteristics
Davis <i>et al.</i> (2003) ¹³ ; Edwards, (2004a) ¹⁴ ; Edwards (2004b) ¹⁵ ; Elwyn (2004) ¹⁶	17	cRCT; Qual	United Kingdom	Recently qualified General Practitioners	Patients with known atrial fibrillation, prostatism, menorrhagia, or menopausal symptoms
Kim (2005) ¹⁷	13.5	Pre-post	Mexico	Health care providers in government health facilities	Women seeking family planning services
Bieber (2006) ¹⁸ ; Bieber (2008) ¹⁹	15	RCT; Qual	Germany	Specialty physicians in outpatient setting	Patients with fibromyalgia
Timmermans ²⁰ , (2006)	14.5	Pre-post	Netherlands	Radiation oncologists (staff and residents)	Newly referred oncology patients
Towle (2006) ²¹	N/A	Qual	Canada	Family physicians (lead tutors)	Patients in family medicine practice
Loh (2007) ²²		cRCT	Germany	Primary care physicians	Patients with newly diagnosed depression
Haskard (2008) ²³	16	RCT	United States (California)	Primary care physicians (Ob/gyn, Family medicine, internal medicine)	Primary care patients
Krones (2008) ²⁴	17	cRCT	Germany	Family practice physicians	Family practice patients
Legare (2012) ²⁵ Legare (2013) ²⁶ Couet (2014) ²⁷	15	cRCT	Canada	Family physicians (staff and residents)	Adults or children with acute respiratory infection
Sheridan (2012) ²⁸	14	RCT	United States (North Carolina)	Physicians from an academic and community-based practice	Male patients 40–80 years of age
Tinsel (2013) ²⁹	17.5	cRCT	Germany	General Practitioners	Patients ≥18 years, with hypertension, requiring repeated prescriptions
Wilkes (2013) ³⁰	17	cRCT	United States (California)	Internal and Family Medicine Physicians	Male patients 55–65 years of age
Harter (2015) ³¹ Bieber (2018) ³²	17.5	cRCT	Germany	Oncologists	Breast and colon cancer patients
Tai-Seale (2016) ³³ ; Dillon (2017) ³⁴	17	cRCT	United States (California)	Primary care physicians and medical assistants	Primary care patients
Geiger (2017) ³⁵ ; Kasper (2017) ³⁶	18	RCT; pre-post	Germany	Neurologists, dentists, general practitioners	Patients in consultation requiring decision of more than one option
Sanders (2017) ³⁷	17	cRCT	Netherlands	Primary care physicians	Patients with low back pain
Henselmans (2019) ³⁸	18	RCT	Netherlands	Medical oncologists and fellows	Patients with metastatic/inoperable tumors; median life expectancy <12 mo

Abbreviations: MERSQI indicates Medical Education Research Study Quality Instrument; cRCT, cluster randomized-controlled trial; qual, qualitative analysis; RCT, randomized-controlled trial

Table 2. Description of Interventions and Results in a Systematic Review of Shared Decision-Making Educational Programs.

Author (year)	Details about Intervention		Control	Measures and Analyses	Shared Decision Making (SDM) Outcomes
Davis <i>et al.</i> (2003) ¹³ ; Edwards, (2004a) ¹⁴ ; Edwards (2004b) ¹⁵ ; Elwyn (2004) ¹⁶	LV, RP, FP, TI	2 workshops with didactics; feedback on consultations with SPs; workshop also addressed risk communication skills	Workshops addressing risk communication skills; crossover study, so all participants had both interventions	Davis (2003): content analysis Edwards (2004a): COMRADE score, Patient Enablement Instrument, patient questionnaires Elwyn (2004): OPTION scale, provider questionnaires	Davis (2003): high degree of congruence between clinicians & pts in decision-making Edwards (2004a): no change in COMRADE score or other patient-reported outcomes Elwyn (2004): Clinicians significantly increased involvement of patients
Kim (2005) ¹⁷	WM, LV, RP, FP, TI	2.5-day workshop, use of 100-page flipchart, role-playing; feedback	Pre-training (3 months before)	Adapted RIAS of videotaped interactions; Adapted OPTION scale	Improved information offered; prompted providers to tailor information to client's situation; improved client involvement in decision making
Bieber (2006) ¹⁸ ; Bieber (2008) ¹⁹	WM, LV, GD, RP, TI	12 1.5-hr sessions (videos, interactive discussion, role play, practicing competencies); computer-based visualized information package (text, video) for pts	Information intervention received information tool, but treated by SDM-untrained physicians; non-randomized control treatment as usual	FAPI (Primary physician-patient interaction from pts' and physicians' perspective; qual (grounded theory and triangulation); semi-standardized interviews (re: physician-patient interaction; perceived involvement in decision, wish for involvement, subjective illness concepts, coping behavior); questionnaires; Secondary: SWD; DCS	Significant difference in FAPI score; interactions less difficult A year follow-up: "coping with pain had more positive view when thinking of their future improved"; "Patients of the SDM group adopted with the illness. They had developed more activity in treatment and they also had more active treatment plans for the future."
Timmermans (2006) ²⁰	LV, GD, RP, SR, FP, TI	2 plenary sessions (3-hr each) on SDM behaviors; group discussion; SPs; 1-hr feedback session on each of 3 videotaped consultations	Pre-training consultations	Adapted RIAS	Improvement in pts' participation in the beginning/throughout the consultation; in first hundred utterances, pts in post-group contributed more to interactions (about agendas, ideas, diagnosis, psychosocial circumstances); engaged more actively in decision making
Towle (2006) ²¹	WM, LV, GD, RP, SR, FP	3-hr workshop followed by three simulated patient encounters with feedback (from SPs, facilitators, peers)	Pre-training consultations	Analyzed transcripts of recorded consultations; classification scheme developed for SDM; discussion groups with physicians and researchers; framework method of analysis; pt questionnaire	Discrepancy between subjective assessment of SDM (providers thought rating of success) and evidence of SDM on transcripts; practice of SDM limited

Author (year)	Details about Intervention		Control	Measures and Analyses	Shared Decision Making (SDM) Outcomes
Loh (2007) ²²	WM, LV, GD, RP, TI	5 program events (4 modules each) over 6 months; modules on enhancing skills; standardized cases with role-playing; patient information leaflet	Pre-training consultation and compared with control group who did not receive intervention	Patients' Perceived Involvement in Care Scale; Man-Son-Hing scale about patient involvement; patient satisfaction; Brief PHQ-D (criteria-based screening for depression); treatment adherence scale; consultation time	Significantly higher participation found in intervention group from pre-to post-in both scales; greater increase in intervention group as compared to control group; no significant difference in treatment adherence; no sig reduction in depression severity
Haskard (2008) ²³	WM, LV, RP, SR, FP	6-hr interactive workshop + 30-45 min coaching session; patient also received 20 min waiting room intervention with guide	No training for physician or pt; (+3 conditions: combinations of physician and pt training)	RIAS for audiotaped interactions; validated questions for a range of patient and physician outcomes	Significant effects: increased independent ratings of physicians' communication with pts; improved information giving, lifestyle health behavior counseling, and increased patients' quality of care rating and willingness to recommend physician; physician satisfaction decreased
Krones (2008) ²⁴	WM, LV, RP, FP, TI	Two 2-hr sessions; didactics, practical communication strategies, role play with feedback	Seminars on defined alternative topics (not CVD prevention)	Primary: Patient participation scale; Secondary: SDM-Q scale, decisional regret; measured immediate preventive actions and sense of control by theory of planned behavior	Intervention arm patients participated more and more satisfied; patients reported more SDM, less decisional regret after 6 months; CVD risk decreased from baseline in both groups (no difference)
Legare (2012) ²⁵ Legare (2013) ²⁶ Couet (2014) ²⁷	LV, GD, TI	"DECISION+2" – 2-hr online self-tutorial; interactive workshop with videos, exercises, decision support tool; point of care reminder	Usual care, no access to training for physicians	Proportion of patients who decided to use antibiotics after consultation; patient roles; DCS, CPS; quality of decision; DRS; SF-12; physician intention to engage in SDM in future; D-Option scale	Pts in intervention group: less likely to use antibiotics, higher scores SDM behavior, report assuming active/ collaborative role; staff physicians more likely to have patients report SDM behaviors; no difference in: decisional conflict, perception of quality of decision, decisional regret; QOL; intention of physician to engage in SDM in future
Sheridan (2012) ²⁸	LV, TI	1-hr session about prostate cancer screening and SDM; 12-min video decision aid for pts; 8-min coaching tool for pts	No control; only examined differences between pt interventions	perceived SDM, self-reported SDM, reporting of PSA screening	Not clear how much of effect was provider intervention; improved perception that screening is a decision, not on self-reported participation in SDM, intervention group reported less actual screening
Tinsel (2013) ²⁹	WM, LV, RP, TI	6-hrs total; didactics; case vignettes for role play, CVR calculator; pt information flyers to intervention group	No training, usual treatment	Primary: change in perceived SDM (SDM-Q-9); change in systolic BP; Secondary: change of diastolic BP, pt knowledge about HTN, medication adherence; CVR score	No significant intervention effect on any endpoints (concerns about content validity of SDM-Q-9)

Author (year)	Details about Intervention		Control	Measures and Analyses	Shared Decision Making (SDM) Outcomes
Wilkes (2013) ³⁰	LV, TI	30-min interactive web-based program on prostate cancer screening; also group with pt intervention	No physician or pt intervention	Primary: Pt perception of SDM (modified questionnaires); Secondary: SP measures of SDM behaviors, final rec; physicians perception of SDM (questionnaire)	Moderate to high level of SDM on modified Kaplan scales in both groups (no difference); PSA test frequency similar in both groups; no sig behavior difference in SDM as reported by SPs
Harter (2015) ³¹ Bieber (2018) ³²	WM, LV, RP, SR, FP, TI	12-hr training (8-hr, then 4-hr refresher) with group discussion, reflection, role play (with video feedback); use of decision aids	Not trained; usual treatment	Harter (2015) Primary: Pt perceived confidence and satisfaction with decision (multiple questionnaires) Secondary: OPTION Bieber (2018): CPS, PPS, and congruence between CPS and PPS	Harter (2015) - No difference in confidence or satisfaction with decision; Higher OPTION scores and less anxiety/depression Bieber (2018) Improved pt perceived autonomy or active role; no improvement in matching pt preference for decision-making
Tai-Seale (2016) ³³ ; Dillon (2017) ³⁴	WM, LV, RP, FP, TI	OpenComm (2 min video, 2-30 min sessions of SP coaching; +/- ASK	Usual care; ASK handout for pt only	Primary: Observed audio-recording of visits; Observer OPTION5	Higher OPTION scores for OpenComm (eliciting patient preferences, integrating patient preferences into decision)
Geiger (2017) ³⁵ ; Kasper (2017) ³⁶	WM, LV, RP, FP	40-page manual, 20-min video, 2 15-min face to face feedback sessions (consultation videos)	No training initially	MAPPIN'SDM: Patient, provider, and observer perspectives; SDMmass, SDM-Q, DCS, questionnaires	SDMmass increased significantly in intervention group compared to the controls, physicians reported SDM higher after intervention, but not patients
Sanders (2017) ³⁷	LV, RP, SR, FP, TI	2 2.5-hr sessions with group discussion, reflection, feedback, role play; decision aid and desktop tool to facilitate SDM; feedback on 2 training consultations	Not trained, usual care	Primary: OPTION scale (level of SDM and positive reinforcement of chosen therapy) Secondary: level of autonomy; extend for "wait and see"; OPTION scale; duration of consultation	Trained physicians scored higher on OPTION scale and level of positive reinforcement; less paternalistic decision making
Henselmans (2019) ³⁸	WM, LV, GD, RP, FB, TI	Readers, 2 small group sessions (3.5-hrs each) with discussion, videos, role play with simulated patient; booster session (1.5-hr feedback, videotaped consultation); pocket card with SDM phrases; pt decision aid	No training, usual treatment	Primary: Observed SDM as rated by blinded observers (audio-recorded) using OPTION12 and 4SDM; Secondary: Patient and provider questionnaires (SDM-Q, PSQ, DCS, QOL); duration; decision made	Large positive effect on observed SDM and patient-reported SDM; no impact on satisfaction (generally high), decisional conflict, quality of life, consultation duration, decision made

Abbreviations: SDM indicates shared decision making; LV, lecture or video; GD, group discussion; RP, role play; SR, self-reflection; FP, feedback on performance; TI, tool for interaction; WM, written material; O, other; SP, simulated patient; COMRADE, Combined Outcome Measure for Risk Communication and treatment Decision making Effectiveness; OPTION, Observing Patient Involvement Scale; RIAS, Roter Interaction Analysis System; FAPI, Questionnaire on Doctor-Patient Interaction; SWD, Satisfaction With Decision scale; DCS, Decisional Conflict Scale; PHQ-D, Patient Health Questionnaire-Depression; CVD, coronary vascular disease; SDM-Q, Shared Decision Making Questionnaire; CPS, Control Preference Scale; DRS, Decisional Regret Scale; SF-12, 12-item Short Form-Survey; QOL, quality of life; PSA, prostate specific antigen; CVR, cardiovascular risk; BP, blood pressure; HTN, hypertension; PPS, Patient Perception Scale; ASK, AskShareKnow; MAPPIN'SDM, Multifocal Approach to the 'Sharing' in Shared Decision Making; SDMmass, SDM Meeting its concept's ASSumptions

subjective assessment of and evidence for shared decision making on transcripts²¹.

Agency

We now describe the concepts of agency as identified in the included studies. Although none of the studies included facilitating agency or impacting relational agency as an explicit element of an educational intervention to teach shared decision making, aggregation of codes for CHAT and agency enabled us to identify concepts related to relational agency. To illustrate, we describe one study^{18,19} by Bieber *et al.* which had the most robust collection of codes associated with agency and CHAT. We offer this study as the clearest application of relational agency in studies of educational interventions for shared decision making process.

This study describes a group of German outpatient physicians caring for patients with fibromyalgia syndrome. Patients in this study reported they often encountered resistance from within the medical community and “often spend all their strength on struggling, quarrelling and asserting themselves during consultations and tend to use ‘war’ and ‘legal’ metaphors in their descriptions of medical encounters”¹⁸. Physicians in the study also reported negative feelings, sometimes making them want to discontinue treating the patient¹⁸. With a CHAT lens, these descriptions evoke images of two interacting activity systems in which the objects are not aligned, and tensions have developed. The patient and the physicians had varying degrees of agency, and their existing interaction did not promote shared decisions.

The study intervention included twelve 90-minute sessions with the goal of training providers to develop a working alliance with their patients. Role plays allowed providers to practice dealing with challenging situations and inviting the patient to participate in decision making¹⁸. There was also a patient intervention, a computer-based information tool which was designed to lead to behavior change within the patient. Qualitative analysis of recorded consultations, semi-standardized interviews, and questionnaires all supported the finding that there were differences in patients’ reported quality of the physician-patient interaction in the intervention group.

Applying the CHAT lens, we see the study intervention provided tools for both the patient and physician to apply within their activity systems, and the object became aligned (“working alliance”); the intervention impacted community (providers and patients shared a common object) and rules (the patient was now involved in decision-making). The tensions seemed to resolve; more importantly, there were longer term effects, possibly indicating expansive learning, a concept within CHAT that refers to cycles of interacting activity systems leading to learning and behavior change.

Discussion

We identified and reviewed a broad range of educational interventions around shared decision making. As in previous reviews¹⁻³, all included studies described multicomponent

interventions and it is difficult to draw conclusions about effectiveness of any individual component. However, by focusing on patient outcomes, we reveal common elements among many of the studies, including use of tools such as decision aids, small group discussions, and role play or practice with simulated patients, which may be critical for shared decision making. None of the included studies explicitly addressed patient or relational agency.

Based on our analysis, role play and practice with simulated patients were key elements of effective interventions. Like many educational interventions aimed at improving physician communication skills, role play, and the use of simulated patients provide opportunities for physicians to practice those competencies. An umbrella review that examined effective educational programs for teaching physicians’ communication skills found that the interventions were effective if they were at least one day long, learner-centered (practical), and focused on skills practice⁴¹. Among specific strategies, role play with simulated or real patients, feedback and small group discussions were found to be effective⁴¹. The authors of the umbrella review reported that interventions were often poorly described and varied greatly, most lacked theoretical underpinnings, and relative efficacy was difficult to ascertain because many components were combined⁴¹. One of the included reviews specifically examined the use of simulated patients and/or role play in 23 studies and concluded that more studies report improvement in communication skills when practice has taken place; the single study that compared role play with simulated patients showed no difference in extent of improvement⁴². Although limitations included multicomponent interventions, variable outcomes, small study size, and potential selection bias in some studies, the three studies considered higher quality demonstrated better outcomes when simulated patients and/or role play were utilized⁴².

Although the multicomponent nature of the included interventions in this review prevents us from teasing out the specific impact of role play and/or simulated patients, the studies that included these components demonstrated improvements in shared decision making outcomes. In addition to the importance of communication competencies in making shared decisions, we propose that practice and feedback might also provide the social context required to develop and maintain physician behaviors that bolster patient engagement and partnership in the complex shared decision making process. Although relational agency was not mentioned explicitly, these interactive interventions may enhance the physician’s comfort with relational agency. Role play, in particular, may be well suited to facilitate relational agency. As Lane and Rollnick wrote in their 2007 study: “. . . trainees can get additional knowledge by experiencing the role of the patient”⁴².

We did not identify any studies that explicitly addressed patient or relational agency, either in the design of the intervention or in reported outcomes. The study by Bieber *et al.* allowed us to retrospectively consider how relational agency may be

emphasized in educational interventions and how CHAT could be utilized in the analysis of an educational intervention^{18,19}. But we must be clear that this was our interpretation of a study and not the authors' explicit intent. Given our finding that the majority of studies included role play or simulated patients and considering that these approaches most logically allow the introduction and development of the concept of relational agency between patient and physicians, we would recommend consideration of this area for future study. Street et al. addressed the issue of how clinician-patient communication can directly and indirectly impact health outcomes, by empowering patients to be active agents in their health: "Clinicians can facilitate patient involvement in the decision making process by helping patients actively seek information, clarify treatment goals, and express concerns and feelings"⁴³. Applying the CHAT framework to studies of shared decision making interventions will allow investigators to examine how well the intervention addresses tensions in the simulated clinical encounter and how physicians learn to engage patients in decisions, potentially leading to expansive learning over time.

Consideration of relational agency may be important to successful shared decision making and should be included in development of future educational interventions. Focused on relational agency, Edwards and D'Arcy studied young bilingual pupils teaching a foreign language to student teachers. Similar to shared decision making between a physician and patient, "teaching was . . . seen as joint action between pupils and student teachers on the shared object of the learners' communicative competence, using some fairly traditional pedagogic tools"⁴⁴. The investigators also found that the sessions became more interactive and responsive; the authors stated: ". . . the concept of relational agency, embedded within the idea of a classroom as an open-ended learning zone is a useful way forward. Its particular strength lies in the emphasis it places on the need for learners to develop the capacity to both seek and give support in joint action on the object of activity to expand mutual understandings of the object"⁴⁴. We can envision a similar application to shared decision making, in which role play and simulated patients give the physician learners an opportunity to learn from the interaction with the "patient"; similarly, over time, physicians and patients learn from each other how to reach the shared object of shared decision making. Expansive learning can begin with an educational intervention that has development of relational agency between patient and physician as a central theme.

There do not appear to be well-accepted instruments or tools to evaluate or measure patient or relational agency; therefore, studies that address the role of agency in shared decision making should include a qualitative component. The use of qualitative analysis within the Bieber study design provided a rich example of the potential impact of the intervention on patient agency¹⁸. Our use of CHAT in this review demonstrates its potential as a future framework to analyze the role of agency in studies of shared decision making and to suggest potential areas for future research. Specifically, the tensions between each of the components of an activity system shed light on the complexity of shared decision making. Furthermore, the more

complex tensions between two activity systems are also worth investigating.

In order to characterize studies of shared decision-making educational interventions and identify those that address patient agency, we included only studies that reported patient outcomes. One benefit of our approach, besides answering our research questions, was that many of our studies scored high on quality ratings. Other potential reasons for the higher MERSQI ratings are that the majority of the studies were RCTs and, in particular, many of the included studies used previously validated instruments to report on outcomes, such as the OPTION and Roter scales.

However, by focusing on actual patient outcomes, our approach excluded articles describing medical students or other trainees who do not see patients independently; all of the interventions involved physicians who cared for patients independently (i.e., attending physicians, fellows, and residents). Another limitation was that, while the majority of studies were RCTs, making them methodologically strong educational studies, they often did not include qualitative analyses that may have provided more insight into the role of agency. Finally, despite our best efforts to conduct a comprehensive search, it is possible we inadvertently missed articles.

Conclusions

Educational interventions to teach shared decision making to physicians commonly include decision aids, role play, and/or simulated patients, and have had a positive impact on a range of patient outcomes. Explicit instructional design around individual and relational agency is absent from educational interventions for shared decision making. Using CHAT can highlight the role of agency and identify tensions that could be included in the design and development of training programs. Future research and development of instructional strategies should consider the complexity inherent in co-constructing decisions.

Educators should consider utilizing multicomponent interventions to teach shared decision making, including role play and/or simulated patients and should ensure health professionals are familiar and can effectively engage patients using decision aids. Although formal educational programs around facilitating patient agency have not been developed, clinicians should look for opportunities to encourage patients to actively seek information and should inquire about patients' preferences and treatment goals.

Data availability statement

Extended data

Zenodo dataset: Educational interventions for shared decision making and the role of patient agency: A Systematic Review.

DOI: [10.5281/zenodo.5029150](https://doi.org/10.5281/zenodo.5029150)⁸

The project contains the following extended data:

- Complete Search StrategiesWitkop.pdf
- PRISMA checklist

Data are available under the terms of the [Creative Commons Attribution 4.0 United States](#)

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Disclaimer

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This is an interesting paper exploring educational interventions for shared decision making and the role of patient agency. The topic is crucial in temporary models of care delivery, given the role of the patient is changing including active involvement in the decision making. The manuscript is well written, however I have the following comments:

- Given the role of agency in this research, the concept has been scarcely explained. Please further elaborate on this concept and its role in clinical practice in the manuscript.
- Co-design of these interventions is important. According to international practice guidelines for some conditions, patients should be active members of the treatment team. How does this align with the findings of your research? Please elaborate on this in the manuscript.
- Limitations RE: this research have not been reported?
- The educational interventions reviewed are important indeed, but the implementation in practice is next level. In line with this and the current findings, the discussion is lacking implications for practice. Please add this to the discussion section.

Are the rationale for, and objectives of, the Systematic Review clearly stated?

Yes

Are sufficient details of the methods and analysis provided to allow replication by others?

Yes

Is the statistical analysis and its interpretation appropriate?

Yes

Are the conclusions drawn adequately supported by the results presented in the review?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Cardiac arrhythmias, novel models of care delivery, patient involvement

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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