

A Systematic Review of Shared Decision–Making Interventions for Service Users With Serious Mental Illnesses: State of the Science and Future Directions

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Objective: Shared decision making (SDM) is a health communication model that may be particularly appealing to service users with serious mental illnesses, who often want to be involved in making decisions about their mental health care. The purpose of this systematic review was to describe and evaluate participant, intervention, methodological, and outcome characteristics of SDM intervention studies conducted within this population.

Methods: Systematic searches of the literature through April 2020 were conducted and supplemented by hand searching of reference lists of identified studies. A total of 53 independent studies of SDM interventions that were conducted with service users with serious mental illnesses and that included a quantitative or qualitative measure of the intervention were included in the review. Data were independently extracted by at least two authors.

Results: Most studies were conducted with middle-age, male, White individuals from Western countries.

Interventions fell into the following categories: decision support tools only, multicomponent interventions involving decision support tools, multicomponent interventions not involving decision support tools, and shared care planning and preference elicitation interventions. Most studies were randomized controlled trials with sufficient sample sizes. Outcomes assessed were diverse, spanning decision-making constructs, clinical and functional, treatment engagement or adherence, and other constructs.

Conclusions: Findings suggest important future directions for research, including the need to evaluate the impact of SDM in special populations (e.g., young adults and racial-ethnic minority groups); to expand interventions to a broader array of decisions, users, and contexts; and to establish consensus measures to assess intervention effectiveness.

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Serious mental illness is defined as a long-term disability attributable to a mental condition that interferes with employment, interpersonal relationships, activities of daily living, and self-care and that is characterized by repeated psychiatric hospitalizations (1). Service users with serious mental illnesses, such as psychotic or affective disorders, highly value the opportunity to be involved in decision making about their treatment (2–5). However, such involvement occurs less often in practice than what is desired because of systemic, treatment provider, and service user factors, including time constraints during the clinical encounter, concerns about the ability of service users to participate in decision making, and self-stigma (6).

Shared decision making (SDM) is an effective health communication model that may enhance service users' knowledge about their conditions and treatment options and facilitate through a variety of means improved treatment decision

making between service users, treatment providers, and other stakeholders (7, 8). For example, decision aids (DAs), or

HIGHLIGHTS

- Shared decision–making interventions are associated with a number of positive outcomes in the general health care literature and are increasingly being studied among service users with serious mental illnesses.
- This systematic review identified current trends and gaps in the delivery and analysis of shared decision–making interventions for service users with serious mental illnesses.
- Understanding what is needed to advance the science and practice of shared decision making in this population is critical for promoting person-centered mental health care.

decision support tools, are a common type of SDM intervention that help service users and providers make informed, values-consistent treatment decisions by describing, comparing, and discussing treatment options (9). Other SDM approaches typically include decision coaching, guidance, and motivational and self-management strategies (10, 11). SDM interventions have been applied to a variety of health conditions and treatment-related decisions and have yielded positive effects such as reducing decisional conflict, improving knowledge of health conditions and relevant treatments, enhancing decision quality, and increasing acceptance of recommended treatment (12, 13). Although less common in mental health, SDM interventions have been developed for service users who experience serious mental illnesses, targeting choices about psychotropic medication (14, 15) and other decisions (e.g., family involvement in care [16]).

A growing recognition of the promise of SDM interventions for service users with serious mental illnesses has led to opportunities to examine their characteristics and outcomes across individual studies. Hauser and colleagues (17) conducted a systematic review of controlled clinical trials to examine the effect of SDM on patient-relevant, disease-

specific outcomes. That review included only three studies conducted with service users with schizophrenia and indicated mixed findings about whether participation in SDM improves patient-relevant outcomes in this population. In a systematic review and meta-analysis of 11 randomized controlled trials (RCTs) of SDM in psychosis, Stovell and colleagues (18) found a small effect of SDM on empowerment but no significant effects on the service user-provider relationship or decision-making ability. In a systematic and scoping review that included 31 studies, Zisman-Ilani et al. (11) highlighted the heterogeneity of SDM tools and interventions for service users with mental health conditions, including those with serious mental illnesses, and described their associated outcomes. Zisman-Ilani et al. (11) also developed a typology of SDM components, including provision of information, discussion about patient preferences and values, communication skills training, shared care planning, facilitation of patient motivation, and goal setting. These reviews made important contributions to the literature, but they either focused on specific outcomes or included service users with and without serious mental illnesses. A more comprehensive review of SDM interventions for people with serious mental illnesses is needed to advance work in this area by identifying trends, and possible gaps, in delivery and evaluation.

The purpose of the present systematic review was to describe and evaluate studies related to SDM interventions for service users with serious mental illnesses. We aimed to address three primary questions about the evidence base for SDM in this population. What are the characteristics of participants in these interventions? How have the interventions been implemented? How might outcomes vary by

intervention type? As such, our review was designed to provide an account of the state of the science, lessons for development and implementation of SDM interventions and tools, and possible areas for future discovery.

METHODS

Search Strategy and Selection Criteria

We followed the PRISMA statement and checklist (19) for reporting guidance of the review process. To identify studies to include or consider for this systematic review, we worked with a medical librarian to develop detailed search strategies for each database. The search strategy was piloted in PubMed Legacy (National Library of Medicine) and was applied to Embase (Elsevier), Web of Science (Clarivate Analytics), PsycINFO (EbscoHost), and Applied Social Sciences Index and Abstracts (Proquest) by using a combination of keywords and subject headings. A gray-literature search included the American Psychological Association's PsycNet. (A list of search terms is available in an online supplement to this article.) The search was limited to the English language (the primary language of the review team) and articles published since 1980, because this was around the time when the concept of SDM began to appear in the academic literature (8). The original search was completed on July 11, 2018, and was updated on April 15, 2020. The reference lists of included articles were also hand searched for other potential studies.

Two authors (E.C.T., Y.Z.-I.) screened the titles and abstracts of all identified articles to determine which full texts should be accessed and evaluated. They then cross-screened 10% of the included full-text articles to ensure consistency in the selection process, dividing up the screening of the remainder of full-text articles after a high level of agreement was achieved (>80%) and discussing all discrepancies to consensus. Articles were included in the review if they met all the following criteria: all participants were service users with serious mental illnesses, as defined by the Substance Abuse and Mental Health Services Administration (1); interventions included "elements of discussion or communication of health information between a provider and patient or caregiver, and aimed to enhance patient participation, involvement, or self-determination in decisions about the guiding or planning of treatment" (11); studies of decision support tools or DAs were included only when they were used as part of an appointment, meeting, or consultation between providers and service users or caregivers; article types included all except review papers, editorials, development papers, protocol papers, and survey studies of views, perceptions, or attitudes toward SDM; studies included quantitative or qualitative measures assessing the process or outcomes of interventions. Articles were excluded if participants, interventions, or article types did not meet these criteria.

Data Extraction

Data extraction was performed independently by at least two authors who used a data dictionary. Characteristics of each

study's participants (e.g., country of origin and demographic characteristics), experimental intervention (e.g., intervention name and components, format, duration or frequency, type of interventionist, setting, and intended user or users [service user, other supporter, or mental health provider]), methods (e.g., study design and quality), and outcomes (e.g., constructs and time points assessed) were recorded. Classification of intervention components was informed by Zisman-Ilani and colleagues' (11) typology, and intervention components included DAs and decision support tools that elicited shared care planning, elicited preferences, facilitated patient motivation, and involved decision coaching, decision guidance, or communication skills training. Interventions were subsequently grouped into decision support tools only, multicomponent interventions involving decision support tools, multicomponent interventions not involving decision support tools, and shared care planning and preference elicitation interventions. We followed Perestelo-Perez et al. (20) in categorizing decision-making outcomes into SDM antecedents, SDM process, and SDM outcomes; all other outcomes were grouped on the basis of patterns that emerged in the data. If primary versus secondary outcomes were specified by study authors, only primary outcomes were extracted; for studies in which this information was not provided, all outcomes were extracted. Discrepancies were discussed to reach consensus. Data were synthesized with count and frequency statistics.

Risk of Bias and Study Quality

Risk of bias for each study that included quantitative data was independently evaluated by pairs of researchers within the author team by using the Cochrane Collaboration Risk-of-Bias tool (21). Study quality of each study that included qualitative data was independently rated by an author pair by using the Critical Appraisal Skills Program (CASP) qualitative checklist tool (22). Mixed-methods studies were evaluated with the use of both tools. Discrepancies were resolved by discussion until consensus was reached. Given that this research evaluated only preexisting data and did not involve interaction with human subjects, it did not require ethics committee approval by our institutions.

RESULTS

Study Selection

The systematic database search resulted in 15,358 records (including 98 grey-literature records) (see PRISMA flow diagram in the online supplement). After removal of duplicate records, 11,711 eligible records were exported to Covidence (at <https://www.covidence.org>), the recommended systematic review platform by Cochrane Reviews. In total, 59 published records of 53 separate studies were included in this review. Characteristics of the methods, participants, and interventions of the included studies are summarized in a table in the online supplement (23–78).

Participant Characteristics

Participants represented many nationalities, because studies were conducted in the United States (25 studies resulting in 29 published records) (14–16, 24, 28–32, 34, 36, 41–43, 45, 49, 51, 52, 55, 56, 62, 64, 65, 68–70, 73, 75, 78), the United Kingdom (10 studies, 12 records) (26, 33, 40, 50, 53, 54, 57, 58, 66, 67, 71, 74), Germany (six studies/records) (25, 35, 37, 59–61), the Netherlands (four studies/records) (38, 39, 46, 47), Australia (two studies/records) (44, 63), Japan (two studies/records) (27, 72), Saudi Arabia (one study/record) (23), Finland (one study/record) (77), Israel (one study/record) (48), and across multiple countries (one study/record) (76). Six studies (eight records) (27, 42, 44, 62, 70, 73, 75, 77) were conducted with young adults between the ages of 18 and 30, and 47 studies (51 records) (14–16, 23–26, 28–41, 43, 45–61, 63–69, 71, 72, 74, 76, 78) evaluated SDM interventions primarily among middle- and older-age adults with serious mental illnesses. Half of the studies included more male than female participants. Of the studies that reported information on the racial and ethnic background of participants ($N=26$), most included predominantly White participants. The mean percentages of participants in other racial and ethnic categories were relatively small in these studies (Black, 37%; Asian, 3%; Native American, 1%; multiracial, 3%; and Hispanic/Latinx, 16%). Psychiatric diagnoses of participants included schizophrenia spectrum disorders and other primary psychotic disorders (e.g., schizophrenia and delusional disorder) in 38 studies, affective disorders (e.g., bipolar disorder and major depression) in 36 studies, anxiety disorders (e.g., posttraumatic stress disorder) in nine studies, personality disorders (e.g., borderline personality disorder) in nine studies, and unspecified serious mental illness in three studies.

Intervention Characteristics

Studies explored a range of SDM interventions. Five studies were of decision support tools only, which focused on psychiatric medication (15, 23, 26), treatment options for depression (24), or questions to ask during an outpatient clinical encounter (25). Twenty-three studies described multicomponent interventions involving decision support tools. Of these, the most frequently evaluated intervention (in eight studies) was CommonGround, a computerized decision support center staffed by peer specialists and intended to be used in preparation for psychiatric medication consultation meetings (14, 28, 30–32, 34, 43, 45). Other interventions in this category also focused on decisions related to psychiatric medications (35, 36, 40, 42), psychiatric rehabilitation services (48), smoking cessation (29), or selection of mental health treatment options in primary or outpatient psychiatric care settings (27, 33, 37–39, 41, 44, 46, 47). Seventeen studies (21 records) were of multicomponent interventions not involving decision support tools (16, 49–68). Most commonly, interventions in this category were designed to elicit service users' preferences for future mental health treatment, including joint crisis planning and facilitated psychiatric advance directives (53–58, 66, 67). Finally, 10 studies were of interventions focused

exclusively on shared care planning and service user preference elicitation (69–78). These interventions did not include decision support tools or other SDM components, such as coaching or guidance. For example, two of these studies were of Open Dialogue, an approach to engage young adults with early psychosis in SDM with treatment providers and other supporters (73, 77).

Most interventions were delivered in a face-to-face format, with many also including either paper or electronic materials; one intervention was delivered by telephone only (61). When the intended duration of the intervention was reported (in 44 studies), it ranged from a single session to up to 3 years. Most commonly, interventions were delivered by mental health providers (e.g., psychiatrists or therapists), sometimes in concert with a peer specialist, and in some cases they were delivered by a trained research assistant or primary care provider. Most interventions were implemented in outpatient settings, six were delivered in inpatient settings, and five within primary care. Interventions were intended to be used by service users and mental health providers in 30 studies (57%); service users only in 12 studies (23%); service users, mental health providers, and other supporters in five studies (9%); service users and other providers (e.g., pharmacists and primary care physicians) in three studies (6%); and service users and other supporters (e.g., family members) in three studies (6%).

Study Designs and Characteristics

Twenty-six studies (29 records) (49%) were RCTs, 17 (32%) were quasi-experimental studies, and five (9%) were naturalistic studies. Eighteen studies (20 records) (34%) were qualitative or had a qualitative component. Sample sizes ranged from 12 to 3,379 participants.

Risk of Bias and Study Quality

Risk-of-bias ratings of quantitative studies and study quality ratings of qualitative studies were calculated (see online supplement). For quantitative studies, the “allocation concealment,” “blinding of participants and personnel,” and “blinding of outcome assessment” items of the Cochrane Collaboration Risk-of-Bias tool (21) received the highest percentage of high-risk ratings (53%, 27 records; 88%, 45 records; and 53%, 27 records, respectively), and the “selective reporting” item received the lowest percentage of high-risk ratings (4%, N=2). “Other bias” was noted in 8% (N=4) of studies, for reasons including selection bias, internal validity concerns, and implementation issues. For qualitative studies, the greatest percentage of studies (50%, N=10) failed to satisfy the following item of CASP qualitative checklist tool: “has the relationship between researcher and participants been adequately considered” (22). However, we noted that most of the qualitative studies ($\geq 80\%$, at least 16 studies) provided a clear statement of the research, justified the use of qualitative methods, used an appropriate design to achieve the study aims, used an appropriate recruitment strategy, appropriately attended to ethical issues, and provided a clear statement of findings.

Outcomes

Nine studies collected data at a single time point (e.g., after exposure to the intervention), 21 used a pre-post design or otherwise collected data at two time points, 18 included follow-up assessments ranging from 4 weeks to 5 years after exposure to the intervention, and the remaining five studies used a data collection procedure that was ongoing throughout the study period (Table 1).

Outcome characteristics of quantitative studies that compared differences between experimental and control groups (if multigroup) or that examined change over time (if single group) are summarized in Table 1. Although process and outcome measures were variable across studies, we describe patterns in the findings across intervention types.

Decision Support Tools Only

Decision support tools were associated with positive findings related to SDM outcomes (i.e., decisional conflict [15]) and treatment engagement or adherence (23). Evidence was mixed about their impact on the SDM process (i.e., treatment satisfaction [23, 25] or perceived involvement in decision making [24]) and other outcomes (i.e., beliefs about medication [23], length of clinical encounter [25], and other feasibility outcomes [24]). Studies did not detect differences between experimental and control groups in terms of SDM antecedents (i.e., participation preferences or decision self-efficacy [25, 26]) or mental health or functional outcomes (i.e., depression symptom severity or quality of life [23]).

Multicomponent Interventions Involving Decision Support Tools

Evidence was limited regarding the impact of multicomponent interventions involving decision support tools on SDM antecedents (i.e., service users’ decision-making preferences [40, 43]), except for one study that found a favorable effect on decision self-efficacy in the experimental group (48). In terms of SDM process, five studies reported a positive impact on service user involvement in decision making (37, 40, 43, 44, 48), and one study failed to find an effect of the intervention on patient-centered communication (28). Mixed findings also pertained to SDM outcomes (i.e., decisional conflict [38–40, 44], perceived effectiveness of the decision-making process [27], satisfaction with the decision [41], and knowledge about treatment options [48]), treatment engagement or adherence (31, 35, 37, 41, 42, 45, 48), mental health outcomes (i.e., symptoms [35, 37, 41, 43, 48]), and other outcomes (i.e., smoking cessation outcomes [29], psychiatrists’ adherence to clinical practice guidelines [36, 42], length of clinical encounter [37], attitudes toward medication, cost-effectiveness [40], side effects [42], and service user activation [43]). Negative findings pertained to service user-provider relationships (40) and global functioning (35).

Qualitative studies reported favorable attitudes toward CommonGround among both mental health providers and service users (14, 30, 34). Another qualitative study noted favorable attitudes toward and comfort engaging in SDM

TABLE 1. Outcomes of reviewed studies of shared decision-making (SDM) interventions, by intervention type^a

Study	Intervention name ^b	SDM		Service user-provider relationships ^f	Treatment engagement, adherence ^g	Mental health outcomes ^h	Functional outcomes ⁱ	Other ^j	Time points
		Antecedents ^c	Process ^d						
Decision support tools only									
Ajumah and Hassali, 2015 (23)	SDM	-	+	-	+	-	-	+	Baseline, 3 months, 6 months
Barr et al., 2019 (24)	eDA for depression	-	-	-	-	-	-	+	Baseline, 2 days after consultation
Hamann et al., 2014 (25)	QPS	-	-	-	-	-	-	-	Pre- and postintervention
LeBlanc et al., 2015 (15)	DMC	-	-	-	-	-	-	-	After clinical encounter
Moncrieff et al., 2016 (26)	Medication Review Tool	-	-	-	-	-	-	-	Baseline, 2-4 weeks after clinical encounter
Multicomponent interventions involving decision support tools									
Aoki et al., 2019 (27)	7-day SDM program	-	-	-	-	-	-	+	Baseline, 3 months, 6 months
Campbell et al., 2014 (28)	CommonGround	-	-	-	-	-	-	+	Baseline, 4-5 months
Chen et al., 2018 (29)	Decision support and academic detailing with feedback	-	-	-	-	-	-	+	Baseline, 2 years
Finnerty et al., 2018 (31)	MyCHOIS-CommonGround	-	-	-	-	-	-	+	Baseline, 1 year
Hamann et al., 2007 (35)	Decision aid for antipsychotic medications	-	-	-	-	-	-	-	Baseline, 6 and 18 months postdischarge
Kreyenbuhl et al., 2017 (36)	Educational program on metabolic side effects of antipsychotic medications	-	-	-	-	-	-	-	Baseline, 365-days after first exposure to intervention
Loh et al., 2007 (37)	SDM	-	+	-	-	-	-	-	Baseline, 6-8 weeks
Metz et al., 2018 (38)	SDM-DI	-	-	-	-	-	-	-	Baseline, 2 weeks, 2 months
Metz et al., 2019 (39)	SDMR	-	-	-	-	-	-	-	Baseline, 6 months
Ramon et al., 2017 (40)	ShiMME training intervention	-	+	-	-	-	-	+/-	Baseline, 12 months
Raue et al., 2019 (41)	SDM	-	-	-	-	-	-	-	Baseline, 1 week after in-person SDM and 4-, 8-, and 12-week follow-up
Robinson et al., 2018 (42) ^k	RAISE NAVIGATE (COMPASS)	-	-	-	+	-	-	+	Baseline, 3, 6, 12, 18, and 24 months
Salyers et al., 2017 (43)	CommonGround	-	+	-	-	-	-	-	Baseline, 12 months, 18 months

continued

TABLE 1, continued

Study	Intervention name ^b	SDM		Service user-provider relationships ^f	Treatment engagement, adherence ^g	Mental health outcomes ^h	Functional outcomes ⁱ	Other ^j	Time points
		Antecedents ^c	Process ^d						
Simmons et al., 2017 (44)	CHOICE		+	-					Before and after clinical encounter
Stein et al., 2013 (45)	CommonGround				-				12 months before implementation, 180 days after
van der Krieke et al., 2013 (47)	WEGWEIS			-					CommonGround implementation
Zisman-Ilani et al., 2019 (48)	SDM	+	+	+	+	+/-			CommonGround implementation, 3 months, 6 months
Multicomponent interventions not involving decision support tools									Baseline, postintervention, 6-12 months later
Anthony et al., 2014 (49)	IPR						+		Baseline, every 6 months until 18 months or termination or graduation
Barrett et al., 2013 (53)	JCP					-			Baseline, 18 months
Bauer et al., 2006 (52)	BDP		+		+/-	+/-	+		Every 8-24 weeks
Dixon et al., 2014 (16)	REORDER					+		+	Baseline, 6 months
Elbogen et al., 2007 (55) ^l	F-PAD	+							Baseline, 1 month
Elbogen et al., 2007 (56) ^l	F-PAD		+						Baseline, 1 year
Hamann et al., 2011 (59)	SDM training for inpatients with schizophrenia	+/-	+/-	-	-	-		-	Baseline, postintervention, 6 months
Hamann et al., 2017 (60)	SDM training for inpatients with schizophrenia								Baseline, postintervention, 6 months, 12 months
Härter et al., 2016 (61)	TBHC								Ongoing throughout study period
Lawn et al., 2007 (63)	Chronic condition self-management via the Flinders and Stanford models					+	+	+	Monthly to every 6 months
Paudel et al., 2018 (64)	Brien SDM model		+	+		+			Baseline, 12 weeks
Sanchez et al., 2019 (65)	DEI			+				+/-	Baseline, postintervention, 1 month follow-up

continued

TABLE 1, continued

Study	Intervention name ^b	SDM		Service user-provider relationships ^f	Treatment engagement, adherence ^g	Mental health outcomes ^h	Functional outcomes ⁱ	Other ^j	Time points
		Antecedents ^c	Process ^d						
Thornicroft et al., 2013 (67)	JCP					-			Baseline, 18 months
Treichler et al., 2020 (68)	CDST	+	-	+/-		+/-		+/-	Baseline, after sessions 4 and 8, 4 weeks
Shared care planning and preference elicitation interventions									
Browne et al., 2017 (70) ^k	RAISE NAVIGATE		+						Baseline, 3, 6, 12, 18, and 24 months
Ishii et al., 2017 (72)	SDM		-			+			At discharge
Gordon et al., 2016 (73)	OD	-					+		Baseline, 3, 6, and 12 months
Lovell et al., 2018 (74)	EQUIP		-						Baseline, 6 months
Priebe et al., 2007 (76)	DIALOG		-				+		Baseline, 12 months
Seikkula et al., 2006 (77)	OD								Baseline, 2 years, 5 years
Woltmann et al., 2011 (78)	EDSS		-	+					After clinical encounter, 2-4 days after clinical encounter

^a +, + denotes statistically significant difference in all outcomes favoring the intervention group (if a randomized controlled trial [RCT] or quasi-experimental [QE] study) or statistically significant within-group change in all outcomes (if a single-group, repeated-measures study). Change was in the expected direction. "-" denotes lack of statistically significant difference in all outcomes between groups (if an RCT or QE study) or lack of statistically significant within-group change in all outcomes (if a single-group, repeated-measures study) or lack of statistically significant change in the unexpected direction. "+/-" denotes statistically significant difference in some, but not all, outcomes favoring the intervention group (if an RCT or QE study) or statistically significant within-group change in some, but not all, outcomes (if a single-group, repeated-measures study). Change was in the expected direction.

^b BPD, Bipolar Disorders Program; CDST, Collaborative Decision Skills Training; CHOICE, Choices About Healthcare Options Informed by Client Experiences and Expectations; DEJ, Depression Education Intervention; DMC, Depression Medication Choice; eDA, encounter decision aid; EDSS, Electronic Decision Support System; EQUIP, Enhancing Quality of Life in Patients; F-PAD, Facilitated Psychiatric Advanced Directive; IPR, Intensive Psychiatric Rehabilitation; JCP, Joint Crisis Planning; OD, Open Dialogue; QPS, question prompt sheet; RAISE, Recovery After an Initial Schizophrenia Episode; REORDER, Recovery-Oriented Decisions for Relatives' Support; SDM-DI, SDM-digital intake; SDMR, SDM using routine outcome monitoring; ShiMME, Shared Involvement in Medication Management Education; TBHC, Telephone-Based Health Coaching; WEGWEIS, Web Environment for Empowerment and Individual Advice.

^c Includes measures of service users' preferences for decision making (e.g., Control Preference Scale and Autonomy Preference Index), decision self-efficacy (e.g., Decision Self-Efficacy Scale), and decision-making competence.

^d Includes measures of service users' involvement in decision making (e.g., OPTION scale and nine-item Shared Decision Making Questionnaire), treatment and service satisfaction (e.g., Client Satisfaction Questionnaire), and patient-centered communication.

^e Includes measures of knowledge about mental health conditions and treatment options, decisional conflict (e.g., Decisional Conflict Scale), and feelings toward the decision (e.g., satisfaction or regret as assessed by the Decision Satisfaction Scale and the Decision Regret Scale).

^f Includes measures of working alliance (e.g., Working Alliance Inventory), trust, and perceptions of the service user-provider relationship (e.g., nine-item Doctor-Patient Relationship Questionnaire).

^g Includes measures of medication or treatment adherence (e.g., Medication Adherence Questionnaire) and treatment engagement (e.g., Service Engagement Scale).

^h Includes measures of psychiatric symptoms (e.g., nine-item Patient Health Questionnaire and Positive and Negative Syndrome Scale), perceived recovery (e.g., Recovery Assessment Scale), and psychiatric hospitalizations.

ⁱ Includes measures of engagement in major life areas, such as social relationships, education and employment, and quality of life (e.g., Manchester Short Assessment of Quality of Life).

^j Includes all other outcomes (beliefs about medications; treatment choice; receipt of smoking cessation medication; smoking status; psychiatrists' adherence to clinical practice guidelines; implementation factors, such as length of consultation, therapist fidelity, and service costs; side effects; cardiometabolic outcomes; patient activation; unmet needs and problems and goals; duration of untreated psychosis; family involvement in treatment; treatment motivation; health locus of control; self-management; and stigma beliefs).

^k Denotes two separate reports from the RAISE Early Treatment Program study.

^l Denotes two separate reports from the F-PAD study.

among service users participating in depression treatment (33).

Multicomponent Interventions Not Involving Decision Support Tools

Three studies found positive effects associated with multicomponent interventions not involving decision support tools on functional outcomes (i.e., global functioning [52, 63], residential and employment status [49], and quality of life [52]). There was mixed evidence about their impact on SDM antecedents (i.e., decision-making competence [55], decision-making preferences [59, 68], and decision self-efficacy [59]). Mixed findings also pertained to SDM process (i.e., treatment satisfaction [52, 56, 59, 64, 68] and responsibility for decision-making [59]), SDM outcomes (i.e., decisional conflict [64], decision-making skills and knowledge [68], and knowledge about mental health [65]), mental health (i.e., psychiatric symptoms [16, 52, 59, 65, 68], perceived recovery and mental health [16, 63, 68], and hospitalizations [53, 61, 66, 67]), and other outcomes (i.e., treatment costs [52], family involvement in treatment [16], attitudes toward medication, health locus of control [59], self-management [63], stigma beliefs [65], and implementation outcomes [68]). Three studies failed to find an effect of these interventions on treatment engagement or adherence (59, 60, 67). One study did not detect significant differences in service user–provider relationships (59).

Qualitative analysis of the content of advance directives and joint crisis plans revealed how service users may use these tools to disclose crisis symptoms, request respectful and compassionate treatment, and express preferences for medication, hospitalization, and medical care (54, 56, 57). Two qualitative studies identified barriers to implementation of joint crisis planning and collaborative care from the perspective of providers and service users (50, 58).

Shared Care Planning and Preference Elicitation Interventions

One study found that shared care planning and preference elicitation interventions were associated with improved SDM outcomes (i.e., knowledge of care plan [78]). Evidence was mixed about the impact of these interventions on SDM process (i.e., perceived autonomy support [70, 74] and treatment satisfaction [72, 78]), mental health (i.e., psychiatric symptoms [73, 77] and hospitalizations [77]), and functional outcomes (i.e., level of functioning [73], quality of life [76], and employment status [77]). One study of this intervention type found no significant differences in SDM antecedents (i.e., decision self-efficacy [73]). Another study found no differences in other outcomes (i.e., duration of untreated psychosis [77]).

A qualitative study of service users' experiences with early intervention in psychosis services reported that a focus on shared care planning and preference elicitation, especially regarding medication, was considered to facilitate engagement and adherence (75). Another qualitative study of SDM on an

inpatient psychiatric unit generally supported feasibility of implementation (71).

DISCUSSION

Summary of Evidence

This review provides a comprehensive account of the state of the science related to SDM interventions for service users with serious mental illnesses. It expands on findings from previous reviews and meta-analyses by describing participant, intervention, and methodological characteristics across studies and illuminating the range of outcomes assessed and reported.

Study samples were relatively homogeneous. As we assessed on the basis of the available data, most studies were conducted with middle-age, male, and White individuals from Western countries. Disproportionately fewer studies were conducted with young adults. It should be noted that many studies, especially those conducted outside the United States, did not report race and ethnicity data, precluding the ability to draw conclusions about the potential role of these factors on outcomes of SDM interventions among service users with serious mental illnesses. This is important, because problems with provider bias, literacy, and provider mistrust are particularly pronounced among individuals from racial and ethnic minority backgrounds in other service user populations, which may limit the degree to which these individuals can engage in SDM (79–82).

Consistent with the review by Zisman-Ilani and colleagues (11), our review found that a variety of SDM interventions have been tested among service users with serious mental illnesses. With the exception of studies of CommonGround and joint crisis planning, few interventions were the focus of more than one study. Many interventions focused specifically on medication-related decisions, with some exceptions targeting other decisions (e.g., goal setting, treatment planning, smoking cessation, and family involvement in care). Most interventions were delivered in a face-to-face format by mental health providers in outpatient settings. Peer specialists cofacilitated the decision-making process in a subset of studies, most often by assisting individuals with using digital decision support tools and providing educational and motivational support. Intervention duration was highly variable, with decision support tools and joint crisis planning and advance directives having the shortest duration and CommonGround having the longest. Most interventions were designed to support SDM between mental health providers and service users.

Our review points to an established and maturing literature on SDM interventions for service users with serious mental illnesses. Approximately half of the quantitative studies were RCTs with sufficient sample sizes, and many qualitative studies fulfilled a large proportion of quality appraisal criteria. However, methodological limitations were noted. More than half of the studies collected data at a single time point or used a pre-post design, limiting the ability to determine longer-term impacts of SDM interventions on outcomes.

Issues with blinding, selection bias, internal validity, and implementation were also noted. Furthermore, many studies were lacking sufficient detail about methodology, making quality appraisal more challenging. This was especially true regarding outcome reporting of quantitative studies and data analysis procedures of qualitative studies. These findings call for the development of guidelines for reporting SDM intervention studies for this population.

As noted in the review by Perestelo-Perez and colleagues (20) of measurement of SDM interventions in mental health, outcome constructs and measures were highly variable across the studies reviewed here. Commonly assessed were involvement in decision making (most often measured subjectively according to service users' perspectives), decisional conflict, service users' satisfaction with care planning processes or treatment, psychiatric symptoms, and medication or treatment adherence. Other outcomes included quality of life, functioning, therapeutic relationships, psychiatric hospitalizations, and implementation outcomes.

It is no surprise that given this diversity of outcomes and the range of interventions evaluated, findings across studies were mixed. However, an examination of patterns in findings across the studies points to possible benefits associated with specific types of interventions. For example, consistent with findings by Zisman-Ilani et al. (11), this review found that decision support tools yielded positive effects only on treatment engagement or adherence in a single RCT and on SDM outcomes (i.e., decisional conflict) in another. Studies of multicomponent interventions involving decision support tools consistently showed positive impacts on service user involvement in decision making; most were quasi-experimental in nature. Also similar to the findings of Zisman-Ilani et al. (11), this review found that multicomponent interventions that did not involve decision support tools yielded positive effects on functional outcomes across various study designs, with many studies also reporting favorable effects for SDM antecedent, process, and outcome variables (e.g., decision-making competence and preferences, treatment satisfaction, and decisional conflict). Finally, preference elicitation and shared care planning interventions gave positive effects only on SDM outcomes (i.e., knowledge) in a single RCT; findings were mixed in other outcome domains. In accordance with Stovell et al. (18), no intervention types clearly yielded benefits regarding service user-provider relationships. One possible explanation for these mixed findings is that only some of these interventions improved service user-provider communication, and thus they had limited impact on later health outcomes. Of course, these findings may also be attributable to methodological factors (e.g., variability in measurement tools, study design, and sample characteristics), rather than to intervention effectiveness, and should be interpreted with caution. Future comparative effectiveness research and meta-analytic studies might further examine which SDM interventions work best in relation to these outcomes.

Limitations

Several limitations to this review merit discussion. First, we did not contact study authors to determine whether additional articles should be included. Furthermore, studies of person-centered interventions that were not characterized with terms such as "SDM," "decision aids," or "decision support" may not have been identified by our search. Therefore, it is possible that relevant articles were missed. However, the comprehensiveness of the search strategy bolstered our confidence that key studies were identified. Second, because many interventions were multicomponent treatments, it was not possible to isolate the effect of specific components on outcomes. Future dismantling studies may be especially useful for this purpose. Finally, although the comprehensiveness of this review allowed for inclusion of multiple study designs and may be considered a strength, drawing conclusions across controlled and noncontrolled trials requires careful consideration of variability in methodological rigor. Furthermore, because the heterogeneity of measures, settings, and sample characteristics precluded use of meta-analysis on the full data set (83), the purpose of this review was to provide a descriptive account of the SDM literature and not to synthesize data for analysis. Consequently, judgments about effectiveness were based solely on the detection of statistically significant differences in outcomes and did not account for effect size. We urge caution in the interpretation of the reported positive and negative findings, and we encourage researchers to subject subsets of similar studies from this review to meta-analysis.

CONCLUSIONS

Results from this systematic review highlight important areas for future research and practice. First, although the relative homogeneity of sample characteristics across the reviewed studies enhances our understanding for whom the evidence base for SDM is built upon, it suggests that additional research is needed to test the effectiveness of SDM interventions among special populations. In particular, young adults with serious mental illnesses are a difficult-to-engage group and may especially benefit from participation in SDM (84, 85). Indeed, most of the reviewed quantitative studies that were conducted primarily with young adults reported positive findings (42, 44, 62, 70, 73), and a qualitative study concluded that young people considered SDM to be an engagement facilitator (75). Future studies should focus on developing, adapting, and testing SDM tools for young adults with serious mental illness, especially to elucidate impacts on engagement and other outcomes. Additionally, the effectiveness of SDM among service users with serious mental illnesses from racial-ethnic minority backgrounds should be a priority in future research, given the combination of underrepresentation of people from these backgrounds in current research and their relatively higher needs for these kinds of interventions.

Second, this review uncovered current trends in SDM intervention delivery, as well as some significant gaps. Many

interventions were targeted to specific decisions, users, and contexts. Interventions that are broadly generalizable to the variety of treatment and living decisions that service users with serious mental illnesses encounter (48, 86, 87) are a priority for future development. Given that family members of people with serious mental illnesses are an important source of support and want to be more meaningfully involved in making treatment decisions (88), additional interventions to facilitate triadic decision making among service users, mental health providers, and other supporters are needed. Recent advancements in integrated care and digital mental health technologies for people with serious mental illnesses (89–92) support the use of SDM interventions outside traditional mental health settings, but this will likely require specialized training of both health care providers and service users in order to promote the implementation and usability of these interventions. For instance, primary care providers, pharmacists, and other providers with relatively little mental health training may especially need instruction in the communication skills needed to effectively engage individuals who have cognitive challenges in decision making (93). Some service users may need additional support to build computer and mobile phone literacy to readily use digital SDM interventions (94). A combination of high- and low-tech strategies may maximize reach.

Third, given the diversity of outcomes assessed and range of measures used across the reviewed studies, an important step in more definitively determining the impact of SDM interventions among service users with serious mental illnesses is the establishment of consensus measures that can be routinely used in outcome studies (20). On the basis of this review, candidate measures might include (but should not be limited to) the Decisional Conflict Scale (95), Client Satisfaction Questionnaire (96), Autonomy Preference Index (97), nine-item Shared Decision Making Questionnaire–Psy (98), Observed Patient Involvement in Decision Making scale (99), Brief Psychiatric Rating Scale (100), and Medication Adherence Questionnaire (101). The constructs measured by the instruments in this list are diverse, which indicates that the field has yet to identify the outcomes that are primary targets of SDM interventions for this population. In addition, most of the listed measures are based on self-report. Although the service user perspective is perhaps the most important to assess, objective measurement (especially of service user involvement in decision making) is needed to supplement and corroborate service user perceptions.

Finally, the SDM definition is broad, and several studies use the terms “shared decision making,” “decision aids,” or “decision support tools” to describe the actual use of clinical decision-making tools (or clinical decision support tools). Although some similarity to SDM in providing information may exist, it is important to emphasize the following difference: whereas SDM-related tools focus on facilitating discussion to achieve a mutual decision, clinical decision-making tools focus on providing information to support decisions, mostly made by providers or by service users alone (102, 103).

This review reflects a global interest in SDM interventions for service users with serious mental illnesses. By identifying trends and gaps across study samples, interventions, methodologies, and outcomes, we hope to inspire future research that will advance science and practice in this vitally important area.

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