# OMERACT Core outcome measurement set for shared decision making in rheumatic and musculoskeletal conditions: a scoping review to identify candidate instruments

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## ARTICLE INFO

## ABSTRACT

*Objectives:* Shared decision making (SDM) is a central tenet in rheumatic and musculoskeletal care. The lack of standardization regarding SDM instruments and outcomes in clinical trials threatens the comparative effectiveness of interventions. The Outcome Measures in Rheumatology (OMERACT) SDM Working Group is developing a Core Outcome Set for trials of SDM interventions in rheumatology and musculoskeletal health. The working group reached consensus on a Core Outcome Domain Set in 2020. The next step is to develop a Core Outcome Measurement Set through the OMERACT Filter 2.2.

*Methods:* We conducted a scoping review (PRISMA-ScR) to identify candidate instruments for the OMERACT Filter 2.2 We systematically reviewed five databases (Ovid MEDLINE®, Embase, Cochrane Library, CINAHL and Web of Science). An information specialist designed search strategies to identify all measurement instruments used in SDM studies in adults or children living with rheumatic or musculoskeletal diseases or their important others. Paired reviewers independently screened titles, abstracts, and full text articles. We extracted characteristics of all candidate instruments (e.g., measured construct, measurement properties). We classified candidate instruments and summarized evidence gaps with an adapted version of the Summary of Measurement Properties (SOMP) table.

*Results:* We found 14,464 citations, read 239 full text articles, and included 99 eligible studies. We identified 220 potential candidate instruments. The five most used measurement instruments were the Decisional Conflict Scale (traditional and low literacy versions) (n=38), the Hip/Knee-Decision Quality Instrument (n=20), the Decision Regret Scale (n=9), the Preparation for Decision Making Scale (n=8), and the CollaboRATE (n=8). Only 44 candidate instruments (20%) had any measurement properties reported by the included studies. Of these instruments, only 57% matched with at least one of the 7-criteria adapted SOMP table.

*Conclusion:* We identified 220 candidate instruments used in the SDM literature amongst people with rheumatic and musculoskeletal diseases. Our classification of instruments showed evidence gaps and inconsistent reporting

of measurement properties. The next steps for the OMERACT SDM Working Group are to match candidate instruments with Core Domains, assess feasibility and review validation studies of measurement instruments in rheumatic diseases or other conditions. Development and validation of new instruments may be required for some Core Domains.

*Abbreviations*

| | |
|---|---|
| CROM | clinician reported outcome measure |
| DQI | decision Quality Instruments |
| FAPI | *Fragebogen zur arzt-patienten-interaktion* |
| MASRI | medication adherence self-report inventory |
| N/A | not applicable |
| NR | not reported |
| OA | osteoarthritis |
| OMERACT | outcome measures in rheumatology |
| Option scale | Observing Patient Involvement in Decision Making instrument |
| PCC | population, concept and context |
| PRESS | peer review of electronic search strategies |
| PRISMA | preferred reporting items for systematic reviews and meta-analysis |
| PRISMA-ScR | preferred reporting items for systematic reviews and meta-analysis extension for scoping reviews |
| PROM | patient reported outcome measure |
| RMDs | rheumatic and musculoskeletal diseases |
| SD | standard deviation |
| SDM | share decision making |
| SOMP | summary of measurement properties |

## Introduction

Shared decision making (SDM) is a process by which clinicians collaborate with patients to provide high-quality care based on best evidence and the patient's needs, values, and preferences [1,2]. Two Cochrane systematic reviews of SDM interventions reported inconsistency in the impact of SDM on decision making outcomes across trials, as well as heterogeneity of measurement instruments used to assess specific outcomes [3–5]. This lack of standardization is a significant threat to comparative effectiveness research and could adversely affect the conclusions of systematic reviews [6]. To address these inconsistencies, the Outcome Measures in Rheumatology (OMERACT) SDM Working Group (WG) is developing a Core Outcome Set for trials of SDM interventions in rheumatic and musculoskeletal diseases (RMDs) (https://omeract.org/working-groups/sdm/).

OMERACT is an independent international initiative of researchers, clinicians and patients that is at the forefront of Core Outcome Set development [7]. A Core Outcome Set is defined as an agreed minimal standardized set of outcomes measures, which should be used and reported as a minimum in all clinical trials on a specific area [8,9]. OMERACT uses a rigorous stepwise approach to developing Core Outcome Sets including **1)** determining a Core Domains Set that should be measured in all randomized controlled trials and longitudinal observational studies (i.e, *what* to measure in terms of outcomes, also called domains) [10] and **2)** determining the Core Outcome Measurement Set (i.e., *how* to measure the domains) [11,12].

The OMERACT SDM WG is classified as a 'bolt-on' group. 'Bolt-on groups' describe the additional domains and instruments that are part of a specific intervention, and which are measured in addition to disease-specific core outcome sets. In a clinical trial of SDM interventions, the trial must measure both the core outcome set specific to the concept of SDM and include the disease-specific core outcome set of the clinical trial's study population. By doing so, we ensure that we measure both intervention-specific and disease-specific outcomes.

The OMERACT SDM WG conducted literature reviews, surveys, interviews, and consensus meetings to develop the Core Domains Set for SDM [13–15]. In 2020, the OMERACT SDM Working Group reached consensus on the Core Domains Set to use in rheumatology and musculoskeletal trials of SDM interventions through virtual consensus meetings with 149 patients, caregivers, clinicians, and researchers [16]. The definitions of the domains include 1) knowledge of options including their potential benefits and harms, 2) chosen option aligned with each study participant's values, 3) certainty in the chosen option, 4) satisfaction with the decision making process, 5) adherence to the chosen option, and 6) potential negative consequences of the SDM intervention [16]. The next step in the OMERACT process is to identify candidate instruments to assess the Core Domains and then, to determine the Core Outcome Measurement Set using the OMERACT Filter 2.2[12]. To our best knowledge, no study to date has identified candidate instruments to assess one or more of the six Core Domains for SDM in RMDs.

### Objectives

The primary objective of this scoping review was to identify all available measurement instruments reported in the SDM literature for people with RMDs. A secondary objective was to explore the content of the included studies to identify evidence gaps for the future application of the OMERACT Filter 2.2 (i.e., measurement properties, domain match, and feasibility).

### Methods

*Research questions and OMERACT Filter 2.2 framework*

This scoping review addresses the following research question: What are candidate instruments for SDM outcomes amongst people with RMDs? We define "measurement instrument" as a tool that is used to measure a quality or quantity of a variable. *Boers* et al. define this as "tool may be a single question, a questionnaire, a score obtained through physical examination, a laboratory measurement, a score obtained through observation of an image, and so on" [17]. Data from this scoping review informs the identification of candidate measurement instruments for each of the Core Domains. These candidate instruments will then follow the methodological framework of the OMERACT Filter 2.2.

The OMERACT Filter 2.2[11] is an instrument selection algorithm to determine a Core Outcome Measurement Set. This filter relies on three pillars of evidence to ensure that a measurement instrument can be included in a Core Outcome Measurement Set[12]: 1) Truth (i.e., domain matching and construct validity), 2) Discrimination (i.e., test-retest reliability, longitudinal construct validity, clinical trial dissemination, thresholds of meaning), and 3) Feasibility. A first working group consensus is based on domain match and feasibility to determine the best candidate measurement instruments [11]. A second working group consensus is organized after a critical appraisal of the measurement properties of these best candidate instruments to select those to integrate in the Core Outcome Measurement Set [11,12]. This scoping review is a preliminary phase to identify evidence gaps prior to answer the three Pillars of the Filter 2.2.

*Study design*

We conducted a scoping review based on the current update of the

Joanna Briggs Institute guidance [18]. We reported our findings according to the extension for scoping review of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA-ScR). We registered the protocol in Open Science Framework (doi.org/10.17605/OSF.IO/4T26R).

*Selection and eligibility criteria*

Table 1 presents the study eligibility criteria according to the Population, Concept and Context (PCC) framework [18].

*Literature search strategy*

An information specialist (FB) in consultation with the review team, developed and tested the search strategies using an iterative process. The MEDLINE strategy was peer-reviewed by another senior information specialist using the Peer Review of Electronic Search Strategies (PRESS) checklist [19]. Strategies utilized controlled vocabulary and key words to operationalize the population and concept of our PCC framework (Table 3). We adjusted vocabulary and syntax across databases. There were no date restrictions. Specific details regarding the search strategies for each database are in Supplemental material.

We undertook the systematic search using five databases: MEDLINE® via Ovid, Embase via Ovid, Cochrane Library databases via Ovid, CINAHL via EBSCO and Web of Science. All searches were performed on March 3rd, 2023. We conducted a structured handsearching of primary studies with backward (i.e., inspecting the references that are cited in the included study [20]) and forward (i.e., using a citation index to identify studies that cite the included study [20]) citations of all the included studies on Web of Science [20]. We used literature reviews (e. g., Cochrane reviews) found during the selection process to perform backward and forward citation searching to ensure rigorous coverage of the literature.

*Study selection*

We used the systematic review management software Distiller-SR (Evidence Partners, Ottawa, Canada) to facilitate study selection. We conducted calibration training of the screening for the first 100 references identified in the literature search to calibrate eligibility criteria interpretation between reviewers. If inter-rater agreements (kappa statistic) were below k = 0.60, we clarified the eligibility criteria and conducted a new calibration training on 100 references. Pairs of reviewers independently (FN, JD, MD, OD, RB, TS) screened titles and abstracts of all potentially eligible citations. Subsequently, pairs of

reviewers then independently screened the full text of potential studies. Disagreement between pairs of reviewers were resolved by reaching a consensus through discussion within the review team. We performed handsearching of the reference lists of the included studies and the literature reviews found during the selection process to screen for relevant studies not found with our search strategy. We documented reasons for full text exclusion and reported them using PRISMA 2020 flowchart.

*Data extraction*

We developed a charting form in Distiller-SR to extract data from the articles identified. Before charting began, reviewers made calibration by testing independently the charting form on a random sample of 10 included studies to ensure a mutual understanding of the variables to extract and that the form adequately captured the desired information. Pairs of reviewers performed the data extraction. We resolved disagreements by team consensus. Extracted variables are presented in Table 2.

*Data charting and synthesis*

Objective #1:
We conducted a descriptive analysis centred on the characteristics of

**Table 1**
Study eligibility criteria.

| Category | Study Eligibility Criteria |
|---|---|
| Population | Adults, adolescents, and children living with RMDs or their important others (e.g., family member, caregiver, friend) involved in the SDM process. |
| Concept | All measurement instruments used in SDM studies (where SDM was a primary or secondary objective) to assess any SDM outcomes. |
| Context | Any clinical and research contexts used in SDM studies. |
| Study designs | Inclusions:<br>• quantitative and qualitative primary studies of any designs<br>• validation studies of measurement properties<br>Exclusions:<br>• literature reviews<br>• protocols<br>• conference abstracts, oral presentations<br>• editorials, letters, and commentaries<br>• studies of any designs available as a thesis<br>• consensus statements |
| Language of publication | Any languages. |

**Table 2**
Extracted variables.

| Objective #1: To identify all available measurement instruments | |
|---|---|
| **Category** | **Extracted variables** |
| Study characteristics and methodology | • Year of publication<br>• Country of publication<br>• Study design |
| Population | • Sample size<br>• RMD diagnosis<br>• Age<br>• Gender or sex according to the reporting<br>• Ethnicity<br>• Presence of any variables known to impact patients' involvement in decision making (e.g., income, emotional distress) [21,22] |
| Concept | • Any measurement instruments used for data collection of SDM outcomes |

| Objective #2: To explore evidence gaps | |
|---|---|
| **Category** | **Extracted variables** |
| Information reported in the included studies that could be useful to explore the three pillars of the OMERACT Filter 2.2. | **TRUTH**<br>*Domain match*:<br><br>• Reported measured constructs and their reported definition [12]<br>• Reported subscales [12]<br>*Construct validity*:<br><br>• Any reported information on construct validity [12]<br>**DISCRIMINATION**<br>Any reported information on:<br><br>• Test-retest reliability or internal consistency [23].<br>• Longitudinal construct validity [23].<br>• Clinical trial discrimination [23].<br>• Thresholds of meaning (e.g., Minimal Important Difference, benchmarks of meaningful scores) [23].<br>**FEASIBILITY**<br><br>• Reported number of items [12]<br>• Reported scoring and cut-off [12]<br>• Type of measure [12]<br>• Other reported information on feasibility [12,24] |

the included studies and the SDM measurement instruments used in each study.

Objective #2:

We classified the identified instruments according to the presence or absence of any measurement properties reported in the included studies. For instruments without information on measurement properties, we described them to explore evidence gaps for domain matching (i.e., one step of the truth pillar) due to the absence of any information for the two remaining pillars.

For instruments with any measurement properties, we described them to explore evidence gaps for the three pillars of the OMERACT Filter 2.2 (i.e., truth, discrimination, and feasibility). We also conducted an exploratory analysis of evidence gaps related to measurement properties (i.e., truth and discrimination pillars of the OMERACT Filter 2.2) based on an adapted version of the Summary of Measurement Properties (SOMP) table. The adapted SOMP table relies on 7-criteria: feasibility [12], construct validity [12], inter-method reliability [12], test-retest reliability [12], longitudinal construct validity [12], clinical trial discrimination [12], and thresholds of meaning [12] .

## Results

### Study selection

Fig. 1 presents a flow diagram of the selection process (PRISMA flowchart). We retrieved a total of 14,464 citations from our search. Six additional articles were included from hand searching. After removing duplicates, 9905 citations remained for the selection. Of these citations, 239 were retained for full text screening. From these, we found 99 eligible studies that were included for data extraction.

### Characteristics of the included studies

Appendix A describes the characteristics of the 99 included studies [25–123]. Fifty-two were performed in the United States, 11 in Canada, and 9 in the Netherlands. Most studies used quantitative designs such as clinical trials or cohort studies (n=80). The five most common RMDs were knee osteoarthritis (OA) (n=36), hip OA (n=20), rheumatoid arthritis (n=18), osteoporosis (n=9), and lumbar herniated disc (n=7). The sample size per study ranged from 11 to 5751 participants. Three

studies only recruited children. From the 96 studies on adult participants, 93 reported information on age (mean age ranged from 24 to 77 years) and sex (female percentage ranged from 5% to 100%), and 49 provided information on ethnicity. From the three studies on children, two reported mean age (ranged from 12 to 13 years with minimum=6 and maximum=17 years), only one study reported information on sex (57% of female). No study presented data on ethnicity or other individual characteristics associated with SDM. The five most reported individual characteristics were information on educational level (n=75), employment status (n=35), marital status (n=29), income (n=20), and access to health insurance (n=15).

We identified 220 candidate measurement instruments associated with SDM outcomes (Appendix A). The five most used measurement instruments were the Decisional Conflict Scale (traditional and low literacy versions) (n=38), the Hip/Knee-Decision Quality Instrument (n=20), the Decision Regret Scale (n=9), the Preparation for Decision Making Scale (n=8), and the CollaboRATE (n=8). The 80 quantitative studies (i.e., study designs likely to use a Core Outcome Measurement Set) used on average 3.5 (SD=1.9) different SDM measurement instruments.

### Characteristics of the measurement instruments with any measurement properties reported by the included studies

We identified 44 out of 220 measurement instruments (20%) for which included studies reported any measurement properties (Appendix B). We extracted all reported constructs for each of the instruments. Based on the available data, 15 measurement instruments (34%) reported multiple and conflicting constructs for a given instrument (i.e., different definitions for the same instrument). For example, the Decisional Conflict Scale included studies reporting different constructs such as "decisional conflict", "decision quality" or "aspect of the decision making process".

The extracted instruments were mainly patient-reported outcome measures (n=43, 98%). The number of items per measurement instrument ranged from 1 to 60. Nine studies (21%) reported conflicting information about the number of items and/or subscales. Eight studies (18%) reported conflicting information about the score or cut-off. Thirty-eight (86%) measurement instruments reported information on reliability, 30 (68%) on validity, 6 (14%) on longitudinal construct
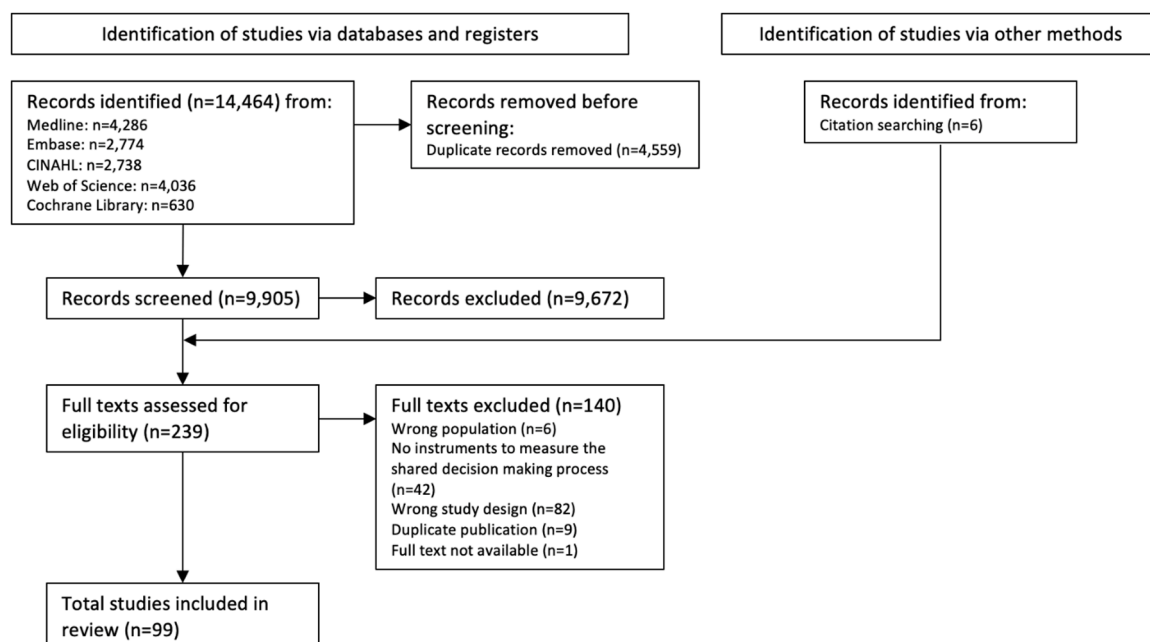


**Fig. 1.** Completed PRISMA Flowchart.

validity, 6 (14%) on feasibility, and 5 (11%) on thresholds of meaning. From the 99 included studies, only 19 (19%) yielded the populations in which one or more reported measurement instruments were validated. From the data reported by the included studies, only 18 (41%) measurement instruments were partially tested for validation in a RMD sample.

*Characteristics of the measurement instruments without any measurement properties reported by the included studies*

We identified 176 measurement instruments (80%) for which included studies did not report any measurement properties (Appendix C). We organized these measurement instruments into clusters representing 13 themes. The five largest themes involved

**Table 3**

Exploratory analysis of evidence gaps from an overall summary based on the adapted SOMP.

| Measurement instrument | Measurement properties | | | | | | |
|---|---|---|---|---|---|---|---|
| | Feasibility | Truth | | Discrimination | | | |
| | | Construct validity | Inter-method reliability | Test-retest reliability | Longitudinal construct validity | Clinical trial discrimi-nation | Thresholds of meaning |
| Decisional Conflict Scale | | | N/A | X | X | X | X |
| Decisional Conflict Scale (low literacy) | | X | N/A | X | | X | X |
| SURE Test | | X* | N/A | | | X* | X |
| Preparation for Decision Making Scale | | X | N/A | | | X | |
| Knee-Decision Quality Instrument | X* | X* | N/A | X* | X | X* | X* |
| Hip-Decision Quality Instrument | X* | X* | N/A | X* | X | X* | X* |
| Herniated disc-Decision Quality Instrument | X* | X* | N/A | X* | X | X* | |
| Spinal Stenosis-Decision Quality Instrument | X | | N/A | X* | X | | |
| ReproKnow | X* | X* | N/A | | | | |
| Methotrexate in rheumatoid arthritis knowledge test | | | N/A | X* | | | |
| Osteoporosis patient knowledge questionnaire | | | N/A | | | | |
| Pregnancy in rheumatoid arthritis questionnaire | | | N/A | | | | |
| CollaboRATE | | X* | N/A | X (intra-rater) | X | X | |
| Control Preference Scale | | X | N/A | | | | |
| Trust in Physician Scale | | | N/A | | | | |
| Interpersonal Processes of Care | | | N/A | | | | |
| Medication adherence | | | N/A | | | | |
| Satisfaction With Decision Scale | | X | N/A | | | | |
| Questionnaire on Doctor-Patient Interaction (FAPI) | X* | | N/A | | | X* | |
| 9-item Shared Decision Making Questionnaire | | X | N/A | | | | |
| Princess Margaret Hospital Satisfaction with Doctor Questionnaire | | | N/A | | | | |
| Informed Shared Decision Making Scale | | | N/A | | | | |
| Decision Regret Scale | | X | N/A | | | | |
| Shared Decision Making Process | | X* | N/A | X | | X* | |
| Trust in Surgical Decision Scale | | | N/A | | | | |
| Decision Self Efficacy Scale | | X | N/A | | | X | |
| Patient-Doctor Relationship Questionnaire | | | N/A | | | | |
| OPTION Scale | | | | | | | |
| MASRI | | X | N/A | | | | |
| Beliefs about Medicines Questionnaire | | X | N/A | X | | | |
| Interpersonal Trust in a Physician | | | N/A | X | | | |
| Effective Consumer Scale | | | N/A | X | | | |
| Medication Education Impact Questionnaire | | | N/A | X* | | | |
| Morisky Medication Adherence Scale | | | N/A | | | | |
| Perceived Involvement in Care Scale | | | N/A | | | | |
| Satisfaction with Information about Medicines Scale | | | N/A | | | | |
| Decision Evaluation Scales | | | N/A | | | | |
| Cologne Patient Questionnaire | | | N/A | | | | |
| Decision readiness | | | N/A | | | | |
| Stage of Decision Making Scale | | | N/A | | | | |
| Treatment intention | | | N/A | X | X | | |
| Satisfaction with decision and decision making | | | N/A | | | | |
| Decision process | | | N/A | X* | | | |
| Knowledge on acute low back pain | | | N/A | | | | |

N/A: non-applicable

FAPI: *Fragebogen zur Arzt-Patienten-Interaktion*

OPTION Scale: Observing Patient Involvement in Decision Making instrument

MASRI: Medication Adherence Self-Report Inventory

* amongst people with RMDs

instruments reporting the measure of satisfaction (n=31, 18%), decision (n=23, 13%), values and preferences (n=22, 13%), adherence (n=22, 13%), and knowledge (n=20, 11%). For the construct of knowledge (the first OMERACT Core Domain [16]), 13 measurement instruments (65%) were specific to one decision in one condition (e.g., a questionnaire about acupuncture in low back pain, a questionnaire about rheumatoid arthritis medications, a questionnaire about total knee replacement). Measurement instruments were mainly patient-reported outcome measures (n=105, 60%). Only 11 measurement instruments (6%) were presented with a name (e.g., Choice Predisposition Scale, Partners in Health Scale) hinting that the remaining instruments were homemade. The number of items per measurement instrument ranged from 1 to 27.

*Exploratory analysis of evidence gaps from an overall summary based on the adapted SOMP*

Table 3 presents an exploratory analysis of evidence gaps from an overall summary based on the adapted SOMP. We determined matching between the included studies reporting any measurement properties and any of the 7-criteria of the adapted SOMP. From the 44 candidate instruments with any reported measurement properties, 25 (57%) reported at least one measurement property required for the adapted SOMP. Feasibility was reported by 6 out of 25 (24%) instruments, one or more hypotheses testing for construct validity by 16 (64%) instruments, test-retest reliability by 15 (60%) instruments, longitudinal construct validity by 6 (24%) instruments, clinical trial discrimination by 11 (44%) instruments, and thresholds of meaning by 5 (20%) instruments.

From the available data, only 12 out of 44 (27%) instruments reported validation process in RMDs populations. From these 12 instruments, feasibility on RMDs populations was reported by 5 (42%) instruments, one or more hypotheses testing for construct validity by 7 (58%) instruments, test-retest reliability by 7 (58%) instruments, longitudinal construct validity by no instrument, clinical trial discrimination by 6 (50%) instruments, and thresholds of meaning by 2 (17%) instruments. From the 99 included studies, twenty-four (24%) studies only reported that the "*instrument is validated*", which was not considered sufficient to match with any adapted SOMP criteria.

**Discussion**

In this scoping review, we were able to identify 220 candidate instruments for SDM outcomes in RMDs. Our classification of the instruments identified evidence gaps prior to conducting the OMERACT Filter 2.2. This led us to make observations concerning **1-** the usefulness of scoping review methods to identify candidate instruments in the development of a Core Outcome Measurement Set and **2-** inconsistent reporting of key metrics to develop a Core Outcome Measurement Set under a high-quality framework such as the OMERACT Filter 2.2.

First, to our knowledge, this is the first scoping review to identify the broad diversity of SDM instruments used in the field of RMDs. We are amongst the first OMERACT Working Group to use a scoping review to identify candidate instruments to develop a Core Outcome Measurement Set within the OMERACT Filter 2.2 framework. We hypothesized that the two specific objectives of scoping review (i.e., data charting and research evidence gaps) could be of great value in informing the operationalization of the OMERACT Filter 2.2 in the field of SDM [18,124]. This scoping review did not seek to provide definitive answers to the OMERACT Filter 2.2, but rather is an opportunity to explore key variables reported by authors and evidence gaps that could require further investigation prior to the OMERACT Filter 2.2.

We identified over 200 candidate instruments, demonstrating the scale and complexity of measuring SDM. This high number of candidate instruments contrasts with the Working Group's aim of selecting only a few standardized tools with high measurement properties value to be used across all SDM trials in RMDs. Our results showed that clinical studies within our sample of eligible articles only used on average four

SDM measurement instruments. We also identified clusters of instruments used in more studies such as the Decisional Conflict Scale, a recognized standard in the field of SDM [3], or the Hip/Knee-Decision Quality Instrument [100–103,105,106]. However, these instruments do not appear to cover all of six OMERACT Core Domains [16] and we are uncertain about the full scale of their relevant measurement properties. Also, the number of items varied greatly between instruments. These findings will need to be accounted for in the selection process of the instruments using the OMERACT Filter 2.2.

Our scoping review will serve as a repository of possible measures of SDM in RMDs studies. This is an opportunity not to bias the selection of the Core Outcome Measurement Set on a few "legacy measures" in the field of SDM, but rather give full opportunity to multiple stakeholders to express their preferences concerning the measure of SDM in RMDs. The SDM Working Group will need to assess the relevance of all candidate instruments and triage them according to the consensus-based Core Domains. A limited number of instruments will need to be selected to ensure the feasibility and acceptability of the future Core Outcome Measurement Set, as evidence showed that uptake is still limited in clinical trials even for established Core Outcome Measurement Sets [125–127].

Second, we identified evidence gaps and inconsistent reporting of key metrics for the development of a Core Outcome Measurement Set such as measured constructs and measurement properties. Measurement properties of candidate instruments are a vital metric to assess the value of an instrument in the OMERACT Filter 2.2. Unfortunately, we found that only a fifth of all candidate instruments had any measurement properties reported in the included studies. It is possible that this finding exposes inconsistency or underreporting of evidence supporting the use of an instrument in a clinical study. However, the extent of this underreporting highlights that in the SDM literature for RMDs, most authors included multiple measurement instruments without evidence of measurement properties. In the case of our working group and with the current data, we are unable to complete the second step of the OMERACT Filter 2.2 with over 80% of the identified candidate instruments because of the lack of measurement properties.

Another worrying result is that a third of all instruments with any measurement properties reported multiple and conflicting constructs for a given instrument. For example, we extracted six different constructs for our most used instrument the Decisional Conflict Scale, such as "Decisional conflict", "Aspect of the decision making process" or "Perception of being uncertain, uninformed, unsupported, or unclear as to values to be considered". For the Hip/Knee-Decision Quality Instrument, the second most used instrument, we extracted ten different constructs. We also found inconsistent reporting of the number of items and/or subscales used for an instrument and variation in scores and cut-off value interpretation with or without supporting evidence.

Our working group piloted a Core Domain matching exercise at the OMERACT 2023 Special Interest Group meeting. This exercise revealed that several items of the Decisional Conflict Scale were not understood the same way across participants. Domain matching is also compromised for the domain "Knowledge" (i.e., first OMERACT Core Domain). The 20 candidate instruments found in our scoping review are condition-specific and/or decision-specific. Developing a Core Outcome Measurement Set with a unique generic measurement instrument to assess the knowledge component could be difficult and irresponsive to the researchers' needs. Our working group must clarify whether we want a unique instrument for this domain. Given the disparities in reporting constructs for all candidate instruments, we will require a specific methodology to decide, with experts in SDM, which instrument match which Core Domains and which are feasible to complete the first step of the OMERACT Filter 2.2.

To prepare the OMERACT Filter 2.2, we completed an adapted SOMP to verify if the available measurement properties were sufficient to match with any of the 7-criteria of the SOMP as would be required for an instrument to be considered valid for inclusion in an OMERACT Core

Outcome Measurement Set. Again, only half of the instruments with any measurement properties reported at least one measurement property required for the adapted SOMP. This situation may be due to lack of reporting or unavailability of the measurement property for an instrument but demonstrate another significant gap to solve. An example was the Decisional Conflict Scale that could not be considered "Feasible" based on currently available data from our included studies, while other instruments had this information. We are aware of two scoping reviews only for the Decisional Conflict Scale which was used in over 200 studies [128,129] outside the field of RMDs. Our operational definition of this adapted SOMP criteria might be too stringent for SDM instruments [12, 24], but this illustrates evidence gaps for future steps of the process.

Overall, evidence gaps in the reporting of key metrics currently limit the SDM OMERACT Working Group to fully complete the OMERACT Filter 2.2 with certainty. We thereby propose the following possible solutions prior to conducting the Filter 2.2. First, the group will require a consensus-based methodology to match instruments with Core Domains and measure feasibility with potential users. With an organized list of instruments, the group will then require systematic reviews of the identified instrument to ensure all validation studies, including primary development studies, are identified within or outside the field of RMDs. It is possible that some instruments will have been thoroughly validated in other conditions and would be readily available to guide the Filter 2.2. If reviews fail to identify measurement properties required by the SOMP table, we could validate some of these instruments in RMDs population using our international group's databases, trials, and cohorts in rheumatology. It is also possible that we will require to develop a new instrument that will be feasible to assess all Core Domains. While this may appear a tenuous process that could delay the availability of a Core Outcome Measurement Set for SDM trials, experts in SDM will be unsurprised by the complexity of measuring six different Core Domains, and this work will have reaching consequences for this field as no SDM Core Outcome Measurement Set has been designed for any disease yet.

*Strengths and limitations*

This scoping review used the highest methodological standards to map a diverse and complex literature such as SDM for RMDs. Our search strategy allowed the identification of candidate instruments used in various SDM interventions, for multiple RMDs and using a wide spectrum of study designs. However, the complexity of the key concept "SDM" and its heterogeneity may have hindered identification of some studies on this topic. The lack of standardized search filter for RMDs may have also missed relevant studies due to the wide range of diagnostic labels. Our information specialist had previously designed search strategies in other high-quality reviews on SDM and we are confident that we identified most relevant studies and possible instruments to consider for developing a future Core Outcome Measurement Set within the OMERACT framework.

The main limitation is that the scoping review does not enable the SDM Working Group to fully complete the OMERACT Filter 2.2 in its current form. Since completing the Filter 2.2 requires an in-depth analysis of measurement properties, this information is only obtainable if the authors correctly reported any measurement properties in the included studies. The scoping methodology is not able to identify all validation studies for every instrument. We suspect that many instruments considered "unvalidated" in this review, may be so from a lack of complete reporting of measurement properties in clinical studies having used them. Systematic reviews outside the field of RMDs may be required to fully describe measurement properties of selected candidate instruments.

## Conclusion

We identified 220 candidate instruments used in the SDM literature amongst people with RMDs. Our classification of instruments showed

evidence gaps and inconsistent reporting of measured constructs and measurement properties. The evidence gaps currently limit the capacity to fully complete the OMERACT Filter 2.2 with certainty. The next steps for the OMERACT SDM Working Group are to match candidate instruments with Core Domains, assess feasibility and review validation studies of measurement instruments in rheumatic diseases or other conditions. Development and validation of new instruments may be required for some Core Domains.

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## CRediT authorship contribution statement

**Florian Naye:** Conceptualization, Methodology, Investigation, Writing – original draft. **Karine Toupin-April:** Conceptualization, Methodology, Investigation, Writing – original draft. **Maarten de Wit:** Investigation, Writing – review & editing. **Annie LeBlanc:** Conceptualization, Methodology, Investigation, Writing – original draft. **Olivia Dubois:** Conceptualization, Methodology, Investigation, Writing – original draft. **Annelies Boonen:** Investigation, Writing – review & editing. **Jennifer L. Barton:** Investigation, Writing – review & editing. **Liana Fraenkel:** Investigation, Writing – review & editing. **Linda C. Li:** Investigation, Writing – review & editing. **Dawn Stacey:** Investigation, Writing – review & editing. **Lyn March:** Investigation, Writing – review & editing. **Claire E.H. Barber:** Investigation, Writing – review & editing. **Glen Stewart Hazlewood:** Investigation, Writing – review & editing. **Francis Guillemin:** Investigation, Writing – review & editing. **Susan J. Bartlett:** Investigation, Writing – review & editing. **Dorthe B. Berthelsen:** Investigation, Writing – review & editing. **Kate Mather:** Investigation, Writing – review & editing. **Laurent Arnaud:** Investigation, Writing – review & editing. **Akpabio Akpabio:** Investigation, Writing – review & editing. **Adewale Adebajo:** Investigation, Writing – review & editing. **Grayson Schultz:** Investigation, Writing – review & editing. **Victor S. Sloan:** Investigation, Writing – review & editing. **Tiffany K. Gill:** Investigation, Writing – review & editing. **Saurab Sharma:** Investigation, Writing – review & editing. **Marieke Scholte-Voshaar:** Investigation, Writing – review & editing. **Francesco Caso:** Investigation, Writing – review & editing. **Elena Nikiphorou:** Investigation, Writing – review & editing. **Samah Ismail Nasef:** Investigation, Writing – review & editing. **Willemina Campbell:** Investigation, Writing – review & editing. **Alexa Meara:** Investigation, Writing – review & editing. **Robin Christensen:** Investigation, Writing – review & editing. **Maria E. Suarez-Almazor:** Investigation, Writing – review & editing. **Janet Elizabeth Jull:** Investigation, Writing – review & editing. **Rieke Alten:** Investigation, Writing – review & editing. **Esi M. Morgan:** Investigation, Writing – review & editing. **Yasser El-Miedany:** Investigation, Writing – review & editing. **Jasvinder A. Singh:** Investigation, Writing – review & editing. **Jennifer Burt:** Investigation, Writing – review & editing. **Arundathi Jayatilleke:** Investigation, Writing – review & editing. **Ihsane Hmamouchi:** Investigation, Writing – review & editing. **Francisco J. Blanco:** Investigation, Writing – review & editing. **Anthony P. Fernandez:** Investigation, Writing – review & editing. **Sarah Mackie:** Investigation, Writing – review & editing. **Allyson Jones:** Investigation, Writing – review & editing. **Vibeke Strand:** Investigation, Writing – review & editing. **Sara Monti:** Investigation, Writing – review & editing. **Simon R. Stones:** Investigation, Writing – review & editing. **Rebecca R. Lee:** Investigation, Writing – review & editing. **Sabrina Mai Nielsen:** Investigation, Writing – review & editing. **Vicki Evans:** Investigation, Writing – review & editing. **Hemalatha Srinivasalu:** Investigation, Writing – review & editing. **Thomas Gérard:** Investigation, Writing – review & editing. **Juliette LeBlanc Demers:** Conceptualization, Methodology, Investigation, Writing – original draft. **Roxanne Bouchard:** Conceptualization, Methodology, Investigation, Writing – original draft. **Théo Stefan:** Conceptualization,

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## Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Anthony P. Fernandez, MD, PhD: Past 36 months: Grants or contracts from any entity: Mallinckrodt, Novartis, Pfizer. Payments to institution and (partial) to me. Consulting fees: AbbVie, Biogen, UCB, BMS, Alexion: Payments to me. Payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events: AbbVie, BMS, Kyowa Kirin, Mallinckrodt: Payments to me. Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: Board of Directors, American Society of Dermatopathology; Associate Editor, Journal of the American Academy of Dermatology.

Arundathi Jayatilleke: Pas 36 months: Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: Pennsylvania Rheumatology Society, board member: unpaid.

Claire Barber: Pas 36 months: Grants or contracts from any entity: CIHR – 3: Peer reviewed national funding unrelated to current project. CIORA (Canadian Rheumatology Association): Peer reviewed national funding unrelated to current project. Cumming school of medicine Seed Grant: Local university funding, peer reviewed, unrelated to current project. Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: Past chair Human Resource Committee, Canadian Rheumatology Association: Unrelated to current project.

Dorcas Beaton: Past 36 months: Support for attending meetings and/or travel: OMERACT Management Team: OMERACT covers travel costs for members of management team to attend conferences on behalf of OMERACT. Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: Member of Management team of OMERACT, chair of methodology at OMERACT: I help make decisions on the methods that will be used to come to a decision about core outcome sets at OMERACT. This would have informed methods used in this paper.

Dorthe B Berthelsen: Past 36 months: Grants or contracts from any entity: Have received PhD Scholarships from Odense University Hospital and from the Faculty of Health Sciences, University of Southern Denmark. Support for attending meetings and/or travel: Have received a grant from the Erna Hamilton Foundation to cover meeting registration fee and travel costs for OMERACT 2023.

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Maria Suarez-Almazor: Past 36 months: Consulting fees: Pfizer: Consultant. Eli Lilly: Consultant. Syneos Health: Consultant. Participation on a Data Safety Monitoring Board or Advisory Board: Celgene: DSMB member.

Maarten de Wit: Past 36 months: Consulting fees: UCB: Payment to Stichting Tools, Netherlands.

Peter Tugwell: Past 36 months: Consulting fees: Reformulary Group: Providing independent medical consultation professional services to the firms listed in this section. Participation on a Data Safety Monitoring Board or Advisory Board: UCB Biopharma GmbH & SPRL, Parexel International, Prahealth Sciences: An independent Committee Member for clinical trial Data Safety Monitoring Boards for FDA approved trials being conducted by: - UCB Biopharma GmbH & SPRL, - Parexel International, - Prahealth Sciences. Other financial or non-financial interests: Abbvie, Astra Zeneca, Aurinia, BMS, Centrexion, GSK, Horizon Pharma Inc, Janssen, Novartis, Pfizer & Sparrow: I am [unpaid] Chair of the Management Group of a registered non-profit independent medical research organization, OMERACT, whose goal is to improve and advance the health outcomes for patients suffering from musculoskeletal conditions. OMERACT receives arms-length funding from 11 companies.

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Susan J. Bartlett: Past 36 months: Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: American Thoracic Society Board of Directors: 2020–2022; unpaid. PROMIS Health Organization – President Elect, Board of Directors: unpaid. American College of Rheumatology Association of Rheumatology Professionals Executive Committee: 2021–2023; unpaid.

Simon Stones: Past 36 months: Consulting fees: Future Science Group: Payment for document review. Leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid: RAiISE: Director. Stock or stock options: Envision Pharma Group: Related to employment. Other financial or non-financial interests: Envision Pharma Group: Employment.

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### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.semarthrit.2023.152344.

### Appendix A. Characteristics of the 99 included studies

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Allen et al. 2016 [25] | United States of America | Quantitative | Hip or Knee OA | 155 | • Age: 61.8 (11.7)<br>• Female: 60.6%<br>• Ethnicity: 58.1% Caucasian, 38.7% African American, 3.2% Other<br>• Information on education level, numeracy, literacy, health insurance | • Decisional Conflict Scale (low literacy)<br>• Preparation for Decision Making Scale<br>• Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Stage of Decision Making Scale |
| Andersen et al. 2019 [26] | Denmark | Quantitative | Lumbar herniated disc | 40 | • Age: NR<br>• Female: NR<br>• Ethnicity: NR | • Decisional Conflict Scale<br>• CollaboRATE<br>• Herniated Disc-Decision Quality Instrument |
| Bansback et al. 2022 [27] | Canada | Quantitative | Knee OA | 163 | • Age: 64.17 (8.34) to 64.95 (7.54)<br>• Female: 46.3% to 64.2%<br>• Ethnicity: NR<br>• Information on emotional distress | • Knee-Decision Quality Instrument<br>• SURE Test<br>• CollaboRATE<br>• Control Preference Scale<br>• Value concordance analysis<br>• Item on treatment preference<br>• Item on treatment decision<br>• Item on willingness to have surgery |
| Barton et al. 2014 [28] | United States of America | Quantitative | Rheumatoid arthritis | 509 | • Age: 55 (14) to 64 (11)<br>• Female: 84% to 86%<br>• Ethnicity: 36–83% White, 8–32% Latino, 5–20% Asian/Pacific Islander, 1–8% African American, 3–4% Other<br>• Information on education level, income, literacy, native language, emotional distress | • Trust in Physician Scale<br>• Interpersonal Processes of Care |

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*(continued)*

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Barton et al. 2016 [29] | United States of America | Quantitative | Rheumatoid arthritis | 166 | • Age: 58 (12) [24–85]<br>• Female: 88%<br>• Ethnicity: 45% Latino, 26% Asian, 14% African American, 13% Caucasian, 3% Other<br>• Information on marital status, employment, emotional distress | • Decisional Conflict Scale (Low literacy)<br>• Trust in Physician Scale<br>• Interpersonal Processes of Care<br>• Item on medication adherence<br>• Knowledge questionnaire about rheumatoid arthritis medications |
| Bieber et al. 2008 [30] | Germany | Quantitative | Fibromyalgia | 85 | • Age: 49.5 (11.3) to 50.4 (8.8)<br>• Female: 90.2% to 93.2%<br>• Ethnicity: NR<br>• Information on education level, income, literacy, native language, emotional distress | • Decisional Conflict Scale<br>• Satisfaction With Decision scale<br>• Questionnaire on Doctor-Patient Interaction (FAPI) |
| Birru Talabi et al. 2019 [31] | United States of America | Validation | Rheumatic diseases | 152 | • Age: [18–50]<br>• Female: 100%<br>• Ethnicity: 77.1% White, 22.2% Non-white<br>• Information on education level | • ReproKnow |
| Bishop et al. 2019 [32] | United Kingdom | Quantitative | Back pain | 350 | • Age: 47.9 (15.8)<br>• Female: 56.3%<br>• Ethnicity: 88.9% White British, 4.6% White other, 1.2% Asian or Asian British, 0.6 Mixed, 0.6 Black or Black British<br>• Information on education level | • Knowledge questionnaire about acupuncture<br>• Item on willingness to have acupuncture |
| Boland et al. 2018 [33] | Canada | Quantitative | Knee OA | 242 | • Age: 65 (10.3) to 69 (8.2)<br>• Female: 51% to 63%<br>• Ethnicity: NR<br>• Information on education level, employment, income, native language | • Knee-Decision Quality Instrument<br>• SURE Test |
| Bossen et al. 2022 [34] | Netherlands | Quantitative | Hip or knee OA | 317 | • Age: 68 (8.69) to 71 (8.28) [46–90]<br>• Female: 49.71% to 51.7%<br>• Ethnicity: NR<br>• Information on education level | • Decisional Conflict Scale<br>• Patient Activation Measure<br>• 9-item Shared Decision-Making Questionnaire |
| Bot et al. 2014 [35] | United States of America | Mixed methods | Nontraumatic painful conditions of the upper extremity | 130 | • Age: 52 (16) [18–91]<br>• Female: 52%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment | • Princess Margaret Hospital Satisfaction With Doctor Questionnaire<br>• Informed Shared Decision Making scale |
| Bozic et al. 2013 [36] | United States of America | Quantitative | Hip or knee OA | 123 | • Age: 63.1 (10.5) [19–85]<br>• Female: 54.5%<br>• Ethnicity: 73.2% White, 8.1% Asian, 4.9% Black or African American, 0.8% American Indian or Alaska native, 0% Native Hawaiian or pacific islander, 4.9% other<br>• Information on education level, employment, income, health insurance | • Knowledge questionnaire about OA of the hip and knee<br>• Item on treatment choice<br>• Length of consultation time<br>• Item on satisfaction with the visit |
| Braddock et al. 2008 [37] | Canada | Qualitative | Orthopaedic surgery | 133 | • Age: 71.2 [60–96]<br>• Female: 74%<br>• Ethnicity: 76% White, 21% Black, 4% Hispanic<br>• Information on education level | • Observation tool for informed decision making<br>• Duration of the visit |
| Brinkman et al. 2017 [38] | United States of America | Quantitative | Juvenile idiopathic arthritis (parents reported the information) | 171 | • Age: NR<br>• Female: NR<br>• Ethnicity: NR | • SURE test<br>• CollaboRATE |
| Brodney et al. 2019 [39] | United States of America | Validation | Hip or knee OA, lumbar herniated disc or lumbar spinal stenosis | 649 | • Age: 59.9 (15.2) to 64.8 (10.8)<br>• Female: 42% to 56%<br>• Ethnicity: 87–93% White, 2–5% Black, 1–2% Hispanic, 4–6% Other<br>• Information on education level | • Decision Regret Scale<br>• CollaboRATE<br>• Shared Decision Making Process<br>• SURE Test<br>• Item on overall satisfaction<br>• Informed choice analysis |
| Brodney et al. 2022 [40] | United States of America | Quantitative | Hip or knee OA, lumbar herniated disc or lumbar spinal stenosis | 700 | • Age: 65.8<br>• Female: 55.3%<br>• Ethnicity: 89.4% White<br>• Information on education level, literacy | • Trust in the Surgical Decision Scale<br>• Decision Regret Scale<br>• Shared Decision Making Process Scale |

(*continued*)

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| | | | | | | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Herniated Disc-Decision Quality Instrument<br>• Spinal Stenosis-Decision Quality Instrument |
| Cranney et al. 2002 [42] | Canada | Quantitative | Osteoporosis | 18 | • Age: 61.4 (9.74)<br>• Female: 100%<br>• Ethnicity: NR<br>• Information on education level, employment | • Decisional Conflict Scale<br>• Decision Self-Efficacy Scale<br>• Knowledge questionnaire about osteoporosis and the available treatments<br>• Items on realistic expectations<br>• Items on values<br>• Item on choice predisposition<br>• Item on choice |
| Chen et al. 2021 [41] | Taiwan | Quantitative | Lumbar degenerative diseases | 130 | • Age: 54.9 to 55.7<br>• Female: 60.3% to 67.2%<br>• Ethnicity: NR<br>• Information on education level | • Decisional Conflict Scale<br>• Satisfaction With Decision scale<br>• 9-item Shared Decision Making Questionnaire<br>• Decision Self-Efficacy Scale<br>• Control Preference Scale |
| de Achaval et al. 2012 [43] | United States of America | Quantitative | Knee OA | 208 | • Age: 62.8 (9.0)<br>• Female: 68%<br>• Ethnicity: 66% White, 24% African American, 7% Hispanic, 3% Other<br>• Information on education level, employment | • Decisional Conflict Scale |
| de Jesus et al. 2017 [44] | Canada | Quantitative | Knee OA | 45 | • Age: 64.6 [50–90]<br>• Female: 42.2%<br>• Ethnicity: NR | • Decisional Conflict Scale<br>• Knowledge questionnaire about knee OA options<br>• Item on preparation to make a decision on their preference |
| Drenkard et al. 2019 [45] | United States of America | Quantitative | Systemic lupus erythemato-sus | 698 | • Age: 47.5 (13.7)<br>• Female: 93.1%<br>• Ethnicity: NR<br>• Information on education level, employment, health insurance, emotional distress | • Interpersonal Processes of Care |
| du Long et al. 2016 [46] | Netherlands | Quantitative | Hip or knee OA | 172 | • Age: 65 (11) [31–91]<br>• Female: 57%<br>• Ethnicity: NR | • Decisional Conflict Scale<br>• Patient-Doctor Relationship Questionnaire |
| El Miedany et al. 2019 [47] | Egypt | Quantitative | Juvenile idiopathic arthritis | 189 | • Age: 12.7 (1.3) to 12.8 (1.5) [6.1–15.5]<br>• Female: 56.8 to 57.4%<br>• Ethnicity: NR | • 9-item Shared Decision Making Questionnaire<br>• Compliance analysis<br>• Persistence analysis |
| Elwyn et al. 2016 [48] | United Kingdom | Mixed methods | Knee OA | 72 | • Age: 65.8 (11.3)<br>• Female: 60%<br>• Ethnicity: NR<br>• Information on education level, native language | • Knee-Decision Quality Instrument<br>• OPTION Scale<br>• Treatment alignment analysis<br>• Item on values |
| Espinoza et al. 2022 [49] | Canada | Qualitative | Osteoporosis | 169 | • Age: 57.8 (14.6)<br>• Female: 61.5%<br>• Ethnicity: 93.4% White/ Caucasian, 3.6% Black/African American, 3% Other<br>• Information on marital status, education level, income, health insurance | • Compliance analysis<br>• Persistence analysis |
| Fraenkel et al. 2007 [52] | United States of America | Quantitative | Pain involving one or both knees | 83 | • Age: 74 (7) to 74 (9)<br>• Female: NR<br>• Ethnicity: 65–72% Caucasian, 21–30% African American<br>• Information on marital status, education level | • Decision Self-Efficacy Scale<br>• Preparation for Decision Making Tool |
| Fraenkel et al. 2012 [51] | United States of America | Quantitative | Rheumatoid arthritis | 104 | • Age: 62 (12)<br>• Female: 84%<br>• Ethnicity: 87% White<br>• Information on education level, employment | • Decisional Conflict Scale<br>• Choice Predisposition Scale<br>• Knowledge questionnaire about biologics<br>• Informed choice analysis |

(*continued*)

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Fraenkel et al. 2015 [50] | United States of America | Quantitative | Rheumatoid arthritis | 121 | • Age: 54.3 (11.4) to 56.2 (13.3)<br>• Female: 68% to 72%<br>• Ethnicity: 97–98% White, 5–7% Hispanic<br>• Information on marital status, education level, employment, literacy | • Items on values<br>• Decisional Conflict Scale<br>• Combined Outcome Measure for Risk Communication<br>• Informed choice analysis |
| Gasteiger et al. 2022 [53] | New Zealand | Quantitative | Rheumatic diseases (rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis, granulomatosis with polyangiitis, juvenile idiopathic arthritis, other) and their companions | 79 | • Age: 54.1 (17.1)<br>• Female: 60%<br>• Ethnicity: 61% New Zealand European, 20% Other, 9% Pacific, 8% Asian, 3% Māori<br>• Information on education level | • Decisional Conflict Scale<br>• Satisfaction With Decision scale<br>• Item on willingness to change to a biosimilar<br>• Item on preference towards biosimilars<br>• Item on perceptions of cognitive and affective risk<br>• Items on practical and emotional support received by accompanied patients during the decision process<br>• Item on explanation understanding<br>• Item on reassurance<br>• Item on preferences in receiving information accompanied |
| Georgo-poulou et al. 2020 [54] | United Kingdom | Quantitative | Lupus nephretis | 98 | • Age: 40 (10.94) [21–66]<br>• Female: 85.7%<br>• Ethnicity: 35.7% English, 1% White and Black African, 1% Irish, 4.1% Any other white background, 1% White and Black Caribbean, 2% White and Asian, 2% Any other mixed/multiple background, 3.1% Indian, 7.1% Chinese, 17.3% African, 14.3% Caribbean, 2% any other ethnic background<br>• Information on education level | • CollaboRATE<br>• MASRI (adherence)<br>• Beliefs about Medecines Questionnaire<br>• Patient-Doctor Relationship Questionnaire<br>• Interpersonal Trust in a Physician |
| Gong et al. 2017 [55] | South Korea | Quantitative | Carpal tunnel syndrome | 66 | • Age: 52 (9) to 53 (10)<br>• Female: 76% to 81%<br>• Ethnicity: NR<br>• Information on education level | • Decisional Conflict Scale<br>• Knowledge questionnaire about carpal tunnel syndrome |
| Grevnerts et al. 2022 [56] | Sweden | Quantitative | Anterior cruciate ligament injury | 101 | • Age: NR<br>• Female: 55%<br>• Ethnicity: NR | • Items on shared decision making process |
| Hirata et al. 2023 [57] | Japan | Quantitative | Rheumatic diseases | 94 | • Age: median=66 [52–71]<br>• Female: 70%<br>• Ethnicity: NR | • Continuance rate of treatment<br>• Analysis on influential values of patient |
| Hochleh-nert et al. 2006 [58] | Germany | Quantitative | Fibromyalgia | 75 | • Age: 49.85 (10.42)<br>• Female: 93.33%<br>• Ethnicity: NR<br>• Information on marital status, employment | • Decisional Conflict Scale<br>• Satisfaction With Decision scale |
| Hoffman et al. 2014 [59] | United States of America | Quantitative | Knee OA | 126 | • Age: [18–85]<br>• Female: 61%<br>• Ethnicity: 58% Caucasian, 30% African American, 11% Hispanic, 1% Other<br>• Information on education level | • Decisional Conflict Scale (low literacy)<br>• Preparation for Decision Masking scale<br>• Choice Predisposition Scale<br>• Knee-Decision Quality Index |
| Holland et al. 2016 [60] | United States of America | Quantitative | Acute musculoske-letal pain | 94 | • Age: 70 [60–94]<br>• Female: 62%<br>• Ethnicity: 74% White, 26% Black<br>• Information on education level, literacy | • Item on satisfaction with decision<br>• Item on satisfaction with treatment |
| Hsiao et al. 2019 [61] | United States of America | Qualitative | Rheumatoid arthritis | 86 | • Age: 58.3 (13) to 59.6 (12.4)<br>• Female: 82.5% to 87%<br>• Ethnicity: 67.6–71.7% White, 13–18.9% Black, 15–26.1 Hispanic, 13.5–15.2 Other | • Observation tool for specific aspects of shared decision making |

(*continued*)

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Hurley et al. 2020 [62] | United States of America | Quantitative | Hip or knee OA | 5751 | • Information on marital status, education level, employment, health insurance<br>• Age: 58.2 to 60.6<br>• Female: 54.26% to 64.16%<br>• Ethnicity: 65.9–79.1% White, 2.9–11.5% Hispanic or Latino, 7.1–9% Black or African American, 9.1–13.6% Non-hispanic/non-white<br>• Information on marital status, health insurance, emotional distress | • Record on having undergone arthroplasty |
| Hurley et al. 2020b [63] | United States of America | Quantitative | Hip or knee OA | 1838 | • Age: 58.5 (10.1) to 59.3 (9.6)<br>• Female: 56.1% to 64.7%<br>• Ethnicity: 73.3–82.8% White, 17.1–26.7% Non-white/Other<br>• Information on marital status, education | • Item on treatment preferences<br>• Item on decision making stage |
| Hutyra et al. 2019 [64] | United States of America | Quantitative | Anterior shoulder dislocation | 199 | • Age: 23.56 (5.27) [18–35]<br>• Female: 23%<br>• Ethnicity: NR<br>• Information on marital status, education, employment, income, health insurance | • Decisional Conflict Scale<br>• Patient Activation Measure<br>• Analysis on treatment alignment with evidence-based treatment<br>• Item on stage of decision making<br>• Information on awareness of making a preference-sensitive decision<br>• Questionnaire on knowledge retention |
| Ibrahim et al. 2013 [66] | United States of America | Mixed methods | Knee OA | 639 | • Age: 60.70 (9.27) to 61.35 (8.73)<br>• Female: 6% to 7%<br>• Ethnicity: 100% Black<br>• Information on marital status, education level, employment, income, literacy | • Knowledge questions total knee replacement<br>• Items on importance<br>• Items on values and goals<br>• Items on summarizing pros and cons<br>• Questions on discussion of knee pain with primary care provider<br>• Items on readiness<br>• Item on confidence |
| Ibrahim et al. 2017 [65] | United States of America | Quantitative | Knee OA | 336 | • Age: 59.1 (7.2)<br>• Female: 69.9%<br>• Ethnicity: 100% Black<br>• Information on marital status, education level, employment, income | • Record on receiving total knee replacement<br>• Item on willingness to undergo surgery if recommended by the surgeon |
| Isaacs et al. 2013 [67] | United States of America | Quantitative | Orthopaedic injuries | 111 | • Age: 73 (7)<br>• Female: 64%<br>• Ethnicity: 66% White, 34% African American<br>• Information on education level | • Items on components of shared decision making<br>• Item on patient satisfaction with the treatment choice |
| Jayaku-mar et al. 2021 [68] | United States of America | Quantitative | Knee OA | 129 | • Age: 62.59 (8.85) to 62.62 (7.81) [45–89]<br>• Female: 62% to 67%<br>• Ethnicity: 32–41% White, 33–35% Hispanic or Latino, 16–18% Black or African American, 10–15% Asian<br>• Information on education level, employment, health insurance, emotional distress | • Knee-Decision Quality Instrument<br>• CollaboRATE<br>• Item on patient satisfaction with consultation<br>• Duration of consultations<br>• Analysis on total knee replacement rate<br>• ·Item on treatment concordance |
| Kane et al. 2023 [69] | United States of America | Mixed methods | Dupuytren contracture | 30 | • Age: 69 (8)<br>• Female: 17%<br>• Ethnicity: 97% White, 3% Black<br>• Information on education level, employment, income | • 9-item Shared Decision Making Questionnaire<br>• Questions on satisfaction<br>• Item on support<br>• Questions on decision making process |
| Kearing et al. 2016 [70] | United States of America | Quantitative | Spinal stenosis | 168 | • Age: 66.6 (9.7) to 66.7 (9.7)<br>• Female: 47% to 50%<br>• Ethnicity: 98% White | • Decisional Conflict Scale<br>• Knowledge questionnaire about treatment options |

(*continued*)

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Kim et al. 2021 [71] | South Korea | Quantitative | Distal radius fractures | 49 | • Information on marital status, education level, employment, literacy<br>• Age: 55.7 (14.9) to 58.6 (8.4)<br>• Female: 83.3% to 96%<br>• Ethnicity: NR | • Item on stage of decision making<br>• Decisional Conflict Scale |
| Kjeken et al. 2006 [72] | Norway | Quantitative | Rheumatoid arthritis or ankylosing spondylitis | 1193 | • Age: 59.6 (15.6)<br>• Female: 74%<br>• Ethnicity: NR<br>• Information on education level, employment | • Items on received information<br>• Items on involvement in decisions<br>• Item on satisfaction with care<br>• Items on unmet health care needs |
| Kleiss et al. 2021 [73] | United States of America | Quantitative | Upper-extremity conditions (Trigger finger, Carpal tunnel syndrome, Thumb OA, Wrist ganglion, de Quervain tenosynovitis, Lateral epicondylitis, Distal radius fracture, Olecranon bursitis, Scaphoid fracture, Radial head fracture, Mallet fracture, Dupuytren disease) | 147 | • Age: 55 (14) [18–84]<br>• Female: 67%<br>• Ethnicity: 69% White, 31% non-White<br>• Information on marital status, education level, employment | • Decision Regret Scale<br>• Item on treatment choice<br>• Item on satisfaction with the visit |
| Knutsson et al. 2022 [74] | Sweden | Quantitative | Lumbar spine conditions (postsurgery) | 209 | • Age: 64 (14)<br>• Female: 54%<br>• Ethnicity: NR | • Items on shared decision making<br>• Item on overall satisfaction with care |
| Kravitz et al. 2018 [75] | United States of America | Quantitative | Musculoske-letal pain | 215 | • Age: 55.5 (11.1)<br>• Female: 47%<br>• Ethnicity: 74% White, 13% Black or African American, 11% Latino, 6% Asian, 8% Other<br>• Information on marital status, education level, employment | • Trust in Physician Scale<br>• Pain Medication in Primary Care Patient questionnaire<br>• Pain Treatment Satisfaction Scale<br>• Consumer Assessment of Healthcare Providers and System survey |
| Kunne-man et al. 2018 [76] | Netherlands | Qualitative | Osteoporosis | 100 | • Age: 58 (13.2)<br>• Female: 50%<br>• Ethnicity: NR<br>• Information on education level | • OPTION Scale |
| Lai et al. 2021 [77] | United States of America | Quantitative | Displaced diaphyseal clavicle fractures | 41 | • Age: 39 (18) to 44 (15)<br>• Female: 13% to 16%<br>• Ethnicity: 60–75% White, 20–22% Asian, 20–22% Hispanic<br>• Information on education level, employment, health insurance | • Decisional Conflict Scale<br>• Record of treatment choice |
| LeBlanc et al. 2015 [78] | United States of America | Mixed methods | Osteopenia and osteoporosis | 77 | • Age: 66 (10) to 69 (8)<br>• Female: 100%<br>• Ethnicity: NR<br>• Information on education level, income, numeracy | • Decisional Conflict Scale<br>• OPTION Scale<br>• Knowledge questionnaire about osteoporosis and treatment options<br>• Analysis on primary adherence<br>• Analysis on secondary adherence<br>• Duration of encounters<br>• Information on decision to start bisphosphonates |
| Li et al. 2014 [79] | Canada | Quantitative | Rheumatoid arthritis | 30 | • Age: 54.9 (14.9)<br>• Female: 76.7%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment, income | • Decisional Conflict Scale<br>• Effective Consumer Scale<br>• Methotrexate in Rheumatoid Arthritis Knowledge test |
| Li et al. 2018 [80] | Canada | Quantitative | Rheumatoid arthritis | 50 | • Age: 49.6 (12.2)<br>• Female: 80%<br>• Ethnicity: NR<br>• Information on marital status, education level, income | • Decisional Conflict Scale (low literacy)<br>• Medication Education Impact Questionnaire<br>• Partners in Health Scale |
| Lofland et al. 2017 [81] | United States of America | Quantitative | Rheumatoid arthritis or psoriatic arthritis | 204 | • Age: 51 (11.3) to 51.3 (10.7)<br>• Female: 68.2% to 82.7%<br>• Ethnicity: 86.7–88.3% White, 6.7–7.8% Black or African American, 6.7–7.8% Hispanic, 1.6–2.7% Asian, 1.6–2.7% American Indian or Alaskan native, 2.3–4% Other | • 9-item Shared Decision Making Questionnaire<br>• Patient Activation Measure<br>• Morisky Medication Adherence Scale |

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| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Lopez-Olivo et al. 2020 [82] | United States of America | Quantitative | Osteoporosis | 225 | • Age: 63.9 (8.5)<br>• Female: 100%<br>• Ethnicity: 45.3% White, 32.9% Hispanic, 15.6% Black or African American, 6.2% Other<br>• Information on marital status, education level, employment, literacy | • Decisional Conflict Scale (low literacy)<br>• Osteoporosis Patient Knowledge Questionnaire<br>• Effective Consumer Scale |
| Mahlich et al. 2019 [83] | Japan | Quantitative | Rheumatoid Arthritis | 500 | • Age: 54.28 (10.02)<br>• Female: 67%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment, income, emotional distress | • Items on preferences for shared decision making<br>• Item on satisfaction with treatment<br>• Treatment preference fit index |
| Mainz et al. 2022 [84] | Denmark | Mixed methods | Anterior cruciate ligament injury | 50 | • Age: 27.6 [24.6–30.8]<br>• Female: 47%<br>• Ethnicity: NR | • 9-item Shared Decision Making Questionnaire<br>• Question on experience of shared decision making |
| Mangla et al. 2019 [85] | United States of America | Quantitative | Hip or knee OA | 58 | • Age: 63 (9) to 64 (9)<br>• Female: 49% to 56%<br>• Ethnicity: NR<br>• Information on literacy | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument |
| Marshall et al. 2023 [86] | Canada | Quantitative | Knee OA | 140 | • Age: 64.3 (8.7) to 64.4 (7.8)<br>• Female: 47.2% to 65.2%<br>• Ethnicity: NR<br>• Information on emotional distress | • Decision Regret Scale<br>• Item on patient expectations about knee replacement post-surgery<br>• Items on satisfaction with results of knee replacement |
| Martin et al. 2017 [87] | United States of America | Quantitative | Rheumatoid arthritis | 399 | • Age: 64.15 (12.79) to 64.92 (11.58)<br>• Female: 64.3% to 70%<br>• Ethnicity: 5.5–6.8% Minority<br>• Information on education level, income | • Decisional Conflict Scale<br>• Knowledge questionnaire about etanercept |
| Mathijs-sen et al. 2020 [88] | Netherlands | Qualitative | Rheumatoid arthritis | 168 | • Age: 61.2 (11.4)<br>• Female: 69%<br>• Ethnicity: NR<br>• Information on education level | • OPTION Scale |
| Meade et al. 2015 [89] | Australia | Quantitative | Rheumatoid arthritis | 144 | • Age: 30.43 (5.07) to 31.26 (4.26)<br>• Female: 100%<br>• Ethnicity: NR<br>• Information on marital status, education level, emotional distress | • Decisional Conflict Scale<br>• Pregnancy in Rheumatoid Arthritis Questionnaire |
| Montori et al. 2011 [90] | United States of America | Mixed methods | Osteoporosis | 100 | • Age: [50–84]<br>• Female: 100%<br>• Ethnicity: NR<br>• Information on education level, income | • Decisional Conflict Scale<br>• OPTION Scale<br>• Trust in Physician Scale<br>• Knowledge questionnaire<br>• Information on satisfaction with knowledge transfer<br>• Item medication adherence<br>• Analysis on medication adherence<br>• Analysis on persistence |
| Nota et al. 2014 [92] | Netherlands | Quantitative | Rheumatoid arthritis, psoriatic arthritis, or ankylosing spondylitis | 519 | • Age: 56 (12)<br>• Female: 59%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment, income | • Item on satisfaction with decision making process |
| Nota et al. 2016 [91] | Netherlands | Quantitative | Rheumatoid arthritis, psoriatic arthritis, or ankylosing spondylitis | 281 | • Age: 54 (15) to 55 (13)<br>• Female: 61% to 65%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment | • Control Preference Scale<br>• Satisfaction With Decision scale<br>• Beliefs about Medicines Questionnaire<br>• Morisky Medication Adherence Scale<br>• Satisfaction with Information about Medicines Scale<br>• Decision Evaluation Scales<br>• Cologne Patient Questionnaire |

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| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Oakley et al. 2006 [93] | United Kingdom | Quantitative | Osteoporosis | 33 | • Age: 77 [61–90]<br>• Female: 100%<br>• Ethnicity: NR | • Questionnaire on satisfaction with decision and decision making process<br>• Decisional Conflict Scale<br>• Beliefs about Medicines Questionnaires<br>• Satisfaction with Information about Medicines Scale<br>• Medication Adherence Report Scale<br>• Analysis on compliance |
| Pablos et al. 2020 [94] | Spain | Quantitative | Rheumatoid arthritis | 54 | • Age: 58.82 (12.85)<br>• Female: 90.38%<br>• Ethnicity: NR<br>• Information on marital status, education level | • Decisional Conflict Scale<br>• Preparation for Decision Making scale<br>• Decision Self-Efficacy Scale |
| Patel et al. 2014 [95] | United Kingdom | Quantitative | Non-specific low back pain | 148 | • Age: 46.9 (13.8) to 48.8 (16.7)<br>• Female: 65.1% to 67.1%<br>• Ethnicity: 83.5–88.9% White, 4.8–8.2% Asian or Asian British, 3.2–3.5% Mixed, 3.2–3.5 Black or Black British, 0–1.2% Chinese<br>• Information on employment, emotional distress | • Satisfaction With Decision scale<br>• Item on satisfaction with treatment<br>• Item on satisfaction with decision |
| Reilly et al. 2023 [96] | United States of America | Quantitative | Knee OA | 20 | • Age: 71 (13.5)<br>• Female: 5%<br>• Ethnicity: 90% White, 5% Asian/Pacific Islander<br>• Information on education level | • Knee-Decision Quality Instrument<br>• Items on overall experience with decision making process |
| Rivero-Santana et al. 2021 [97] | Spain | Quantitative | Knee OA | 193 | • Age: 66.79 (8.42)<br>• Female: 72.02%<br>• Ethnicity: NR<br>• Information on education level | • Decisional Conflict Scale<br>• Knee-Decision Quality Instrument<br>• Decision Regret Scale<br>• Items on satisfaction with the decision making process<br>• Information on having undergone surgery<br>• Item on treatment preference |
| Sanders et al. 2022 [98] | Netherlands | Mixed methods | Non-chronic low back pain | 176 | • Age: 46.77 (13.16)<br>• Female: 53.8%<br>• Ethnicity: NR<br>• Information on education level | • OPTION Scale<br>• Item on patient-reported shared decision making |
| Scoville et al. 2011 [99] | United States of America | Qualitative | Osteoporosis | 18 | • Age: 70.6 (9.4)<br>• Female: 100%<br>• Ethnicity: NR | • Observation grid on the reasons women present when expressing hesitation about initiation of bisphosphonates and how clinicians react |
| Sepucha et al. 2011 [105] | United States of America | Validation | Hip or knee OA | 509 | • Age: 62.7 (9.6) to 66.1 (9.49)<br>• Female: 56% to 59.1%<br>• Ethnicity: 95.5% White<br>• Information on marital status, education level, income | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument |
| Sepucha et al. 2012 [104] | United States of America | Validation | Lumbar herniated disc | 341 | • Age: 44 (8.6) to 48 (9.6)<br>• Female: 45% to 54%<br>• Ethnicity: 72.5–94% White, 2–20% Black, 2–13% Hispanic, 0.6–3% Asian, 1–8.5% Other<br>• Information on education level, income | • Herniated Disc-Decision Quality Instrument |
| Sepucha et al. 2013 [102] | United States of America | Quantitative | Hip or knee OA | 382 | • Age: 62.7 (9.6)<br>• Female: 55.8%<br>• Ethnicity: 93.9% White, 97.6% Hispanic<br>• Information on education level | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Item on decision regret<br>• Items on decision process<br>• Item on decision confidence |
| Sepucha et al. 2017 [100] | United States of America | Quantitative | Hip or knee OA, lumbar spinal stenosis, or lumbar herniated disc | 649 | • Age: 62.7 (13.1) to 63.8 (11.9)<br>• Female: 50% to 52.9%<br>• Ethnicity: 91–91.4% Non-hispanic white, 2.4–3.1% Black, 3.1% Other or multiple, 0.9–1.5% Hispanic<br>• Information on education level | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Herniated Disc-Decision Quality Instrument |

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| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| | | | | | | • Spinal Stenosis-Decision Quality Instrument<br>• CollaboRATE<br>• Shared Decision-Making Process<br>• Record on having undergone surgery |
| Sepucha et al. 2018 [103] | United States of America | Quantitative | Hip or knee OA, lumbar spinal stenosis, or lumbar herniated disc | 543 | • Age: 63.9 (12.1)<br>• Female: 52.7%<br>• Ethnicity: 92.4% Non-hispanic white, 2.9% Other or multiple, 2.4% Black, 2.6% Hispanic<br>• Information on education level | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Herniated Disc-Decision Quality Instrument<br>• Spinal Stenosis-Decision Quality Instrument<br>• Decision Regret Scale<br>• Items on patient's satisfaction with how their treatment turned out<br>• Items on patient's satisfaction with their current pain and symptoms<br>• Record on treatment received |
| Sepucha et al. 2019 [101] | United States of America | Quantitative | Hip or knee OA | 1124 | • Age: 65 (10)<br>• Female: 57%<br>• Ethnicity: 89% Non-hispanic white<br>• Information on education level, literacy, health insurance | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Shared Decision-Making Process |
| Sepucha et al. 2022 [106] | United States of America | Quantitative | Hip or knee OA | 845 | • Age: 65 (9)<br>• Female: 58%<br>• Ethnicity: 93% Non-hispanic white<br>• Information on education level, health insurance | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Decision Regret Scale<br>• Item on satisfaction with treatment<br>• Item on satisfaction with their current pain<br>• Analysis on informed, patient-centred decision<br>• Record on treatment received |
| Shaw et al. 2021 [107] | Switzerland | Quantitative | Rheumatoid arthritis, psoriatic arthritis, or axial spondyl-arthritis | 2111 | • Age: 46.6 (12) to 50.9 (13.1)<br>• Female: 55% to 57%<br>• Ethnicity: NR<br>• Information on education level, employment | • CollaboRATE<br>• Information on satisfaction with shared decision making |
| Shirley et al. 2015 [108] | United States of America | Quantitative | Neuro-muscular scoliosis (parents reported the information) | 11 | • Age: 12.2 [8–17]<br>• Female: NR<br>• Ethnicity: NR | • SURE test<br>• Knowledge questionnaire about neuromuscular scoliosis treatment<br>• Items on parent's satisfaction with shared decision making |
| Shue et al. 2016 [109] | United States of America | Quantitative | Hip or knee OA | 147 | • Age: 61 (11)<br>• Female: 53%<br>• Ethnicity: 50% White, 33% African American, 12% Hispanic, 4% Asian, 1% Other<br>• Information on education level, health insurance | • Knowledge questionnaire about hip or knee OA disease progression and total hip or knee arthroplasty<br>• Item on satisfaction regarding education and knowledge<br>• Items on decision making participation<br>• Item on treatment preference<br>• Item on stage of decision making |
| Simon et al. 2012 [110] | Germany | Quantitative | Acute low back pain | 2480 | • Age: 45.34 (12.99) to 45.81 (12.71)<br>• Female: 52% to 52.4%<br>• Ethnicity: NR<br>• Information on marital status, education level, native language, emotional distress | • Decisional Conflict Scale<br>• Decision Regret Scale<br>• Preparation for Decision Making scale<br>• Perceived Involvement in Care Scale<br>• Knowledge questionnaire<br>• Item on treatment adherence<br>• Item on patient preference for participation |

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| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Small-wood et al. 2017 [111] | United States of America | Quantitative | Osteopenia or osteoporosis | 50 | • Age: 67.8 to 68.8<br>• Female: 100%<br>• Ethnicity: 98% White, 2% African American, 4% Hispanic<br>• Information on marital status, education level, employment, income, health insurance | • Decisional Conflict Scale<br>• Preparation for Decision Making scale<br>• Information on treatment decision<br>• Information on patient-reported decision making |
| Stacey et al. 2014 [112] | Canada | Quantitative | Knee OA | 137 | • Age: 67.1 (10.85) to 67.3(12.16)<br>• Female: 64.8% to 72.5%<br>• Ethnicity: NR<br>• Information on education level, employment | • Knee-Decision Quality Instrument<br>• Preparation for Decision Making scale<br>• SURE test<br>• Decision quality analysis |
| Stacey et al. 2016 [113] | Canada | Quantitative | Hip or knee OA | 334 | • Age: 66.1 (9.8) to 66.9 (9.8)<br>• Female: 53.4% to 61.7%<br>• Ethnicity: NR<br>• Information on education level, employment, income, native language | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Preparation for Decision Making scale<br>• SURE test<br>• Decision quality analysis<br>• Analysis on realistic expectation<br>• Surgical rate |
| Sumpton et al. 2022 [114] | Australia | Qualitative | Psoriatic arthritis | 25 | • Age: [27–79]<br>• Female: 44%<br>• Ethnicity: 72% Australia/New Zealand, 16% Asia/Pacific, 8% Americas, 4% Europe<br>• Information on education level, employment | • Questions on values<br>• Questions on satisfaction with received information<br>• Questions on relationship and communication with clinicians<br>• Questions on confidence with current understanding<br>• Questions on control when making a decision<br>• Questions on decision making process |
| Torrente-Jimenez et al. 2022 [115] | Spain | Quantitative | Knee OA | 193 | • Age: 66.8 (8.42)<br>• Female: 72%<br>• Ethnicity: NR<br>• Information on education level | • Decisional Conflict Scale<br>• Knowledge questionnaire about OA and total knee replacement<br>• Information on the importance given to certain characteristics and potential outcomes of OA treatments<br>• Items on satisfaction with decision making process<br>• Item on treatment preference<br>• Item on having undergone surgery |
| Tutuha-tunewa et al. 2017 [116] | Netherlands | Quantitative | Midshaft clavicle fracture | 278 | • Age: 39.7 to 42.4 [23.6–55.8]<br>• Female: 14.1% to 22%<br>• Ethnicity: NR | • Items on overall satisfaction with care |
| Valentine et al. 2021 [117] | United States of America | Quantitative | Hip or knee OA, lumbar spinal stenosis, or lumbar herniated disc | 168 | • Age: 65 (11)<br>• Female: 52%<br>• Ethnicity: 93% White non-Hispanic | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Herniated Disc-Decision Quality Instrument<br>• Spinal Stenosis-Decision Quality Instrument<br>• Shared Decision-Making Process<br>• Analysis on informed, patient-centred decision |
| van Dijk et al. 2021 [118] | Netherlands | Quantitative | Hip or knee OA | 131 | • Age: 66 (10) to 68 (11)<br>• Female: 50% to 54%<br>• Ethnicity: NR<br>• Information on marital status, education level, employment | • Decisional Conflict Scale<br>• Items on satisfaction with the given information, the clinic, and the physician<br>• Knowledge questionnaire about treatment options and risks<br>• Information on stage of decision making |

*(continued)*

| Authors *Year of publication* | Country | Study design | Condition(s) | Sample size (n) | Characteristics of participants Age=mean (SD) [Range] | SDM (instrument) measures |
|---|---|---|---|---|---|---|
| Volk-mann et al. 2015 [119] | United States of America | Quantitative | Knee OA | 111 | • Age: 70 (9.6) to 72 (8.2)<br>• Female: 63%<br>• Ethnicity: NR<br>• Information on marital status, education level | • Information on treatment preference<br>• Information whether patient had made their definitive decision after the first visit<br>• Decisional Conflict Scale<br>• Item on decision readiness |
| Weng et al. 2007 [120] | United States of America | Quantitative | Knee OA | 64 | • Age: NR<br>• Female: NR<br>• Ethnicity: 51.5% African American, 48.4% Caucasian | • Decisional Conflict Scale<br>• Item on decision readiness<br>• Item on stage of decision making<br>• Item on willingness to consider total knee replacement<br>• Item on beliefs about the effectiveness of joint replacement |
| Wilkens et al. 2019 [121] | United States of America | Quantitative | Trapezio-metacarpal arthritis | 90 | • Age: 65 (1.3) to 65 (1.5)<br>• Female: 49% to 51%<br>• Ethnicity: 48–52% White<br>• Information on marital status, education level, employment | • Decisional Conflict Scale<br>• Decision Regret Scale<br>• Consultation and Relational Empathy Scale<br>• Information on treatment choice<br>• Item on satisfaction with the visit<br>• Item on overall treatment satisfaction<br>• Analysis for change of treatment |
| Youm et al. 2015 [122] | United States of America | Quantitative | Hip or knee OA | 123 | • Age: 62.4 (11.4) to 63.8 (9.31) [19–85]<br>• Female: 54%<br>• Ethnicity: 74% Non-hispanic, 7% Hispanic<br>• Information on education level, income, health insurance | • Knee-Decision Quality Instrument<br>• Hip-Decision Quality Instrument<br>• Analysis on informed, patient centred decision<br>• Stage of Decision Making scale<br>• Information on treatment choice |
| Zadro et al. 2022 [123] | Australia, New Zealand, United Stated of America, United Kingdom, Canada | Quantitative | Subacromial pain syndrome | 409 | • Age: 41.3 (10)<br>• Female: 44.2%<br>• Ethnicity: NR<br>• Information on education level, employment, health insurance | • Decisional Conflict Scale<br>• Item on treatment intention<br>• Knowledge questionnaire about options<br>• Analysis for informed choice<br>• Items on attitudes towards surgery |

SD: Standard deviation

SDM: Share decision making

OA: osteoarthritis

NR: Not reported

FAPI: *Fragebogen zur Arzt-Patienten-Interaktion*

OPTION Scale: Observing Patient Involvement in Decision Making instrument

MASRI: Medication Adherence Self-Report Inventory

## Appendix B. Characteristics of the measurement instruments with any measurement properties reported by the included studies

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| Decisional Conflict Scale | • Decisional conflict [120, 123]<br>• Aspect of the decision making process [30]<br>• Experiences quality of the decision [34,87,90, 111]<br>• Perceptions of being uncertain, uninformed, unsupported, or unclear | • Knee OA (n=9) [34,43, 44,46,97,115,118-120]<br>• Hip OA (n=3) [34,46, 118]<br>·Trapeziometacarpal arthritis (n=1) [121]<br>• Lumbar herniated disc (n=1) [26]<br>• Lumbar degenerative diseases (n=1) [41] | PROM | • 16 items<br>• 3 subscales (healthcare consumers' uncertainty in making a health-related decision, factors contributing to the un-certainty, healthcare consumers' perceived effective decision | • 0–100 [26,43,123]<br>• Higher score indicating greater decisional conflict [26,123]<br>• Total score ≤ 25: tend to make decisions [42,43, 87,94]<br>• Total score > 37.5: tend to delay decisions or to feel unsure about | Validity:<br>• Validated:<br>  - no information in which populations [41,46,118]<br>• Discriminant validity:<br>  - no information in which populations [42,87,119,120,123]<br>*Reliability*: |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | as to values to be considered [44,46,94]<br>• Patient's uncertainty in making a given health-related decision [41,55,71,121]<br>• Personal perceptions of: (1) uncertainty in health-related decision making; (2) factors contributing to the un-certainty and; (3) the perceived effectiveness of decision making [89]. | • Spinal stenosis (n=1) [70]<br>• Rheumatoid arthritis (n=7) [50,51,53,79,87, 89,94]<br>• Osteopenia or osteoporosis (n=5) [42, 78,90,93,111]<br>• Fibromyalgia (n=2) [30,58]<br>• Carpal tunnel syndrome (n=1) [55]<br>• Anterior shoulder dislocation (n=1) [64]<br>• Distal Radius Fractures (n=1) [71]<br>• Displaced diaphyseal clavicle fractures (n=1) [77]<br>• Acute low back pain (n=1) [110]<br>• Subacromial pain syndrome (n=1) [123] | | making subscales) [34, 42,79,118,121]<br>• 4 subscales (Informed, Values Clarity, Support, and Effective Decision subscales) [87]<br>• 5 subscales (being informed, values clarity, support, uncertainty, and effective decision-making subscales) [41, 43,53,64,89,94,97] | implementation [43,87, 94]<br>• Total score > 38: tend to delay decisions [42]<br>• Scores ≤ 2.0: no difficulty in decision making and implementation [93]<br>• Scores ≥ 2.5: decision delay [93] | • Reliable:<br>- no information in which populations [41,42,46,118]<br>• Internal consistency:<br><br>- in rheumatology [53]<br>- in women with rheumatoid arthritis [89]<br>- in low back pain [110]<br>- no information in which populations [123]<br>• Test-retest reliability:<br><br>- no information in which populations [89,121, 123]<br>*Longitudinal construct validity*:<br>• Sensitive to change:<br>- no information in which populations [42] |
| Decisional Conflict Scale (Low literacy) | • Decisional conflict [25, 82]<br>• Quality of decision [29]<br>• Perceived uncertainty in choosing options, factors contributing to uncertainty, and effective decision making [59,80] | • Knee OA (n=2) [25,59]<br>• Hip OA (n=1) [25] (Allen 2016)<br>• Rheumatoid arthritis (n=2) [29,80]<br>• Osteoporosis (n=1) [82] | PROM | • 10 items [25,59,80]<br>• 4 subscales [25,59,80]<br>0·5 subscales [82] | • 0–100 [25,59,80,82]<br>• Higher scores indicating greater decisional conflict [25,59,80]<br>• 0: being extremely well-informed and clear, and 100: being extremely uninformed or unclear [82].<br>• Total score < 25: tend to make decisions [59,80]<br>• Total score > 37.5: tend to delay decisions [59, 80] | *Validity*:<br><br>• Discriminant validity:<br>- no information in which populations [25,59]<br>• Correlation with other constructs:<br>- no information in which populations [59]<br>*Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [25,59,80,82]<br>• Test-retest reliability:<br><br>- no information in which populations [80,82] |
| SURE test | • Decisional conflict [27, 33,108]<br>• Patient's perception of feeling sure, informed, supported, and clear about what mattered most [39,112,113]. | • Knee OA (n=5) [27,33, 39,112,113]<br>• Hip OA (n=2) [39,113]<br>• Lumbar herniated disc (n=1) [39]<br>• Lumbar spinal stenosis (n=1) [39]<br>• Juvenile Idiopathic Arthritis (n=1) [38]<br>• Neuromuscular scoliosis (parents made the decision) (n=1) [108] | PROM | • 4 items [27,33,38,39, 108,112] | • Response of "yes" to all 4 items indicates no uncertainty [38]<br>• Patients who answered "no" to any SURE test item were experiencing decisional conflict [108]<br>• Cut-off of 3 or less identifies clinically significant decisional conflict [39] | *Validity*:<br><br>• Validated:<br>- no information in which populations [108]<br>• Discriminant validity:<br><br>- in people with hip or knee OA [39]<br>• Predictive validity:<br>- in people with hip or knee OA [39]<br>- in people with lumbar herniated disc or lumbar spinal stenosis [39]<br>• Construct validity:<br>- in people with hip or knee OA [39]<br>- in people with lumbar herniated disc or lumbar spinal stenosis [39]<br>• Correlation with other constructs: |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | - no information in which populations [112,113]<br>*Reliability*:<br><br>• Internal consistency:<br><br>- no information in which populations [39,112, 113] |
| Preparation for Decision Making Scale | • How well the intervention helped them with various aspects of decision making [25,94]<br>• Patients' perception of the usefulness of the intervention in preparing them to communicate with their physician [52,59]<br>• Preparation for decision making [59,110]<br>·Patients' perceptions of the decision making process [112] | • Knee OA (n=4) [25,59, 112,113]<br>• Hip OA (n=2) [25,113]<br>• Rheumatoid arthritis (n=1) [94]<br>• Osteopenia or osteoporosis (n=1) [111]<br>• Pain involving one or both knees (n=1) [52]<br>• Acute low back pain (n=1) [110] | PROM | • 10 items [25,59, 111-113]<br>• 11 items [52,59] | • 0–100 [25,59,110,111]<br>• Higher indicating greater preparation [25, 59,110,111] | *Validity*:<br><br>• Discriminant validity:<br>- no information in which populations [52,59,112,113]<br>• Correlation with other constructs:<br>- no information in which populations [59]<br>*Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [52,59,110,112] |
| Knee-Decision Quality Instrument | • Knowledge about health conditions and treatment options (exclusively knowledge subscale) [25,27,40,96, 97]<br>• Patient's knowledge and readiness to decide [48]<br>• Decision process (exclusively for talking with health care providers subscale) [68]<br>• The extent to which patients were informed and received their preferred treatment [100].<br>• Patient's decision quality [113]<br>• Determine whether or not a decision was informed and patient-centred [117,122]<br>• Understanding of key facts about the treatment options [59] | • Knee OA (n=20) [25, 27,33,40,48,59,68,85, 96,97,100-103,105, 106,112,113,117,122] | PROM | • 4 items (knowledge subscale) [112]<br>• 5 items [40,59] (knowledge subscale)<br>• 6 items (short version) (knowledge, treatment preference subscales) [101,106,117]<br>• 7 items (knowledge subscale) [97]<br>• 9 items (knowledge subscale) [25]<br>• 9 items (knowledge, goals and concerns, treatment preference subscales) [85,100,103]<br>• 13 items (knowledge, readiness to decide, influences on patient's decisions subscales) [48]<br>• 16 items (knowledge, goals, and concerns subscales) [96,105]<br>• 25 items (knowledge and values subscales) [113] | • 0–100 [25,40,59,85, 100,101]<br>• Higher scores indicating greater knowledge [25, 40,59,85,100,101]<br>• Knowledge thresholds were based on recommendations from the DQI scoring guides [117]. | *Validity*:<br><br>• Validated:<br>- no information in which populations [27,33,40,100,101, 103,106,117]<br>• Discriminant validity:<br>- no information in which populations [102,113]<br>- in people with knee OA [105]<br>• Predictive validity:<br>- no information in which populations [25,102,113]<br>- in people with knee OA [105]<br>• Content validity: -no information in which populations [25,102, 113]<br>- in people with knee OA [105]<br>*Reliability*:<br><br>• Reliable:<br>- no information in which populations [25,100,113]<br>• Test-retest reliability:<br>- no information in which populations [101-103,106,117]<br>- in people with knee OA [105]<br>*Responsiveness*:<br><br>• Sensitivity to change:<br>- no information in which populations [101,103,106,117]<br>*Interpretability*:<br><br>• The minimal important changes in knowledge |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | and concordance scores are 10% [85]<br>*Feasibility*:<br><br>• Evidence of Acceptability [100-103, 105,106,117]<br>• Evidence of feasibility [101-103,105,106,117] |
| Hip-Decision Quality Instrument | • Knowledge about health conditions and treatment options (exclusively knowledge subscale) [25,40]<br>• The extent to which patients were informed and received their preferred treatment [100].<br>• Patient's decision quality [113]<br>• Determine whether or not a decision was informed and patient-centred [117,122] | • Hip OA (n=12) [25,40, 85,100-103,105,106, 113,117,122] | PROM | • 5 items (knowledge subscale) [40]<br>• 6 items (short version) (knowledge, treatment preference subscales) [101,106,117]<br>• 9 items (knowledge subscale) [25]<br>• 9 items (knowledge, goals and concerns, treatment preference subscales) [85,100,103]<br>• 16 items (knowledge, goals, and concerns subscales) [105]<br>• 25 items (knowledge and values subscales) [113] | • 0–100 [25,40,85,100, 101]<br>• Higher scores indicating greater knowledge [25, 40,85,100,101]<br>• Knowledge thresholds were based on recommendations from the DQI scoring guides [117]. | *Validity*:<br><br>• Validated:<br>  - no information in which populations [40,100,101,103,106, 117]<br>• Discriminant validity:<br>  - no information in which populations [102,113]<br>  - in people with hip OA [105]<br>• Predictive validity:<br>  - no information in which populations [25,102,113]<br>  - in people with hip OA [105]<br>• Content validity: -no information in which populations [25,102, 113]<br>  - in people with hip OA [105]<br>*Reliability*:<br><br>• Reliable:<br>  - no information in which populations [25,100,113]<br>• Test-retest reliability:<br>  - no information in which populations [101-103,106,117]<br>  - in people with hip OA [105]<br>*Responsiveness*:<br><br>• Sensitivity to change:<br>  - no information in which populations [101,103,106,117]<br>*Interpretability*:<br><br>• The minimal important changes in knowledge and concordance scores are 10% [85]<br>*Feasibility*:<br><br>• Evidence of Acceptability [100-103, 105,106,117]<br>• Evidence of feasibility [101-103,105,106,117] |
| Herniated Disc-Decision Quality Instrument | • Knowledge about health conditions and treatment options (exclusively knowledge subscale) [40]<br>• The extent to which patients were informed and received their | • Lumbar herniated disc (n=6) [26,40,100,103, 104,117] | PROM | • 5 items (knowledge subscale) [40]<br>• 6 items (knowledge, treatment preference subscales) [117]<br>• 9 items (knowledge, goals and concerns, treatment preference subscales) [100,103] | • 0–100 [26,40,100,104]<br>• Higher scores indicating greater knowledge [40].<br>• Each dimension has a separate total score ranging from 0–100, [0 = no knowledge or no involvement in the decision; 100 = best | *Validity*:<br><br>• Validated:<br>  - no information in which populations [40,100,101,103, 117]<br>• Discriminant validity: |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | preferred treatment [26, 100]. <br>• Determine whether or not a decision was informed and patient-centred [117] | | | • 19 items (knowledge and concordance subscales) [104] | possible knowledge or best possible involvement in the decision] [26]. | - in people with herniated disc [104] <br>• Predictive validity: <br>  - in people with herniated disc [104] <br>• Convergent validity: <br>  - in people with herniated disc [104] <br>*Reliability*: <br><br>• Reliable: <br>  - no information in which populations [100] <br>• Test-retest reliability: <br>  - no information in which populations [101,103,117] <br>  - in people with herniated disc [105] <br>*Responsiveness*: <br><br>• Sensitivity to change: <br>  - no information in which populations [101,103,117] <br>*Feasibility*: <br><br>• Evidence of Acceptability [100,101, 103,104,117] <br>• Evidence of feasibility [101,103,104,117] |
| Spinal stenosis-Decision Quality Instrument | • Knowledge about health conditions and treatment options (exclusively knowledge subscale) [40] <br>• The extent to which patients were informed and received their preferred treatment [100]. <br>• Determine whether or not a decision was informed and patient-centred [117] | • Lumbar spinal stenosis (n=4) [40,100,103, 117] | PROM | • 5 items (knowledge subscale) [40] <br>• 6 items (knowledge, treatment preference subscales) [117] <br>• 9 items (knowledge, goals and concerns, treatment preference subscales) [100,103] | • 0–100 [40,100] <br>• Higher scores indicating greater knowledge [40]. | *Validity*: <br><br>• Validated: <br>  - no information in which populations [40,100,103,117] <br>*Reliability*: <br><br>• Reliable: <br>  - no information in which populations [100] <br>• Test-retest reliability: <br>  - no information in which populations [103,117] <br>  - in people with herniated disc [105] <br>*Responsiveness*: <br><br>• Sensitivity to change: <br>  - no information in which populations [103,117] <br>*Feasibility*: <br><br>• Evidence of Acceptability [100,103, 117] <br>• Evidence of feasibility [103,117] |
| ReproKnow | • Reproductive knowledge across a range of topical domains [31] | • ·Rheumatic diseases (n=1) [31] | PROM | • 10 items | • 0–10 [31] <br>• 10 indicating a perfect score on the assessment [31] | *Validity*: <br><br>• Content validity: -in women with rheumatic diseases [31] <br>• Known group validity: <br>  - in women with rheumatic diseases [31] <br>• Structural validity: <br>  (*continued on next page*) |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | - in women with rheumatic diseases [31] <br> *Reliability*: <br><br> • Internal consistency: <br> - in women with rheumatic diseases [31] <br> *Feasibility*: <br><br> • Evidence of feasibility [31] |
| Methotre-xate in rheumatoid arthritis knowledge test | • Knowledge about methotrexate [79] | • Rheumatoid arthritis (n=1) [79] | PROM | • 60 items [79] | • 0–60 [79] | *Reliability*: <br><br> • Internal consistency: <br> - in people with rheumatoid arthritis [79] <br> • Test-retest reliability: <br> - in people with rheumatoid arthritis [79] |
| Osteoporosis patient knowledge question-naire | • Osteoporosis knowledge [82] | • Osteoporosis (n=1) [82] | PROM | • 17 items (20 items in the original version) [82] | • 0–17 [82] <br> • Higher scores indicating superior knowledge [82] | *Validity*: <br><br> • Validated: <br> - *assumed in people with osteoporosis* [82] <br> *Reliability*: <br><br> • Reliable: <br> - *assumed in people with osteoporosis* [82] |
| Pregnancy in rheumatoid arthritis question-naire | • Rheumatoid arthritis, pregnancy, and parenting knowledge [89] | • Rheumatoid arthritis (n=1) [89] | PROM | • 39 items | • 0–39 [89] <br> • Higher scores indicating greater knowledge [89] | *Reliability*: <br><br> • Internal consistency: <br> - in women with rheumatoid arthritis [89] |
| Collabo-RATE | • Patient involvement in the decision making process [26] <br> • Patient's perception of how much effort was made to help them understand their health issue, how much the provider listened to them about their health issue, and how much effort was made to include what matters most to the patient in choosing what to do next [39,100] <br> • Level of shared decision making [68] <br> • Shared decision making [107] | • Knee OA (n=4) [27,39,68,100] <br> • Hip OA (n=2) [39,100] <br> • Lumbar herniated disc (n=3) [26,39,100] <br> • Lumbar spinal stenosis (n=2) [39,100] <br> • Rheumatoid arthritis (n=1) [107] <br> • Juvenile idiopathic arthritis (n=1) [38] <br> • Lupus nephritis (n=1) [54] <br> • Psoriatic arthritis (n=1) [107] <br> • Axial spondylarthritis (n=1) [107] | PROM | • 3 items [26,27,38,39,54,100,107] | • 0–9 [26,38,39,54,100] <br> • Higher scores indicating more clinician effort to engage and involve the parent [26,38,39,54,100] | *Validity*: <br><br> • Validated: <br> - no information in which populations [107] <br> • Discriminant validity: <br> - no information in which populations [38,54] <br> • Concurrent validity: <br> - no information in which populations [38,54] <br> • Predictive validity: <br> - in people with hip or knee OA [39] <br> - in people with lumbar herniated disc or lumbar spinal stenosis [39] <br> • Correlation with other constructs: –in simulated patients [39] <br> *Reliability*: <br><br> • Reliable: <br> - in simulated patients [39] <br> • Intra-rater reliability: <br> - no information in which populations [38] <br> *Responsiveness*: |

(*continued on next page*)

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | • Sensitivity to change:<br>- no information in which populations [38] |
| Control Preference Scale | • Perceived and/or preferred role in medical decision making [91]<br>• The extent of decision making control a patient preferred in treatment decisions [41] | • Knee OA (n=1) [27]<br>• Lumbar degenerative diseases (n=1) [41]<br>• Rheumatoid arthritis (n=1) [91]<br>• Psoriatic arthritis (n=1) [91]<br>• Ankylosing spondylitis (n=1) [91] | PROM | | • A score of 1 indicates a preference for full patient autonomy in decision making, a score of 5 corresponds to a preference for physicians making decisions [41]. | *Validity*:<br><br>• Convergent validity:<br>- no information in which populations [41]<br>*Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [41] |
| Trust in Physician Scale | • Trust [29,90]<br>• Trust in physician [28] | • Rheumatoid arthritis (n=2) [28,29]<br>• Osteoporosis (n=1) [90]<br>• Musculoskeletal pain (n=1) [75] | PROM | • 11 items | 0–100, a score below the median (90.9) was considered to be suboptimal [28] | • *Validity*:<br>• Validated:<br>- in people with rheumatoid arthritis [28] |
| Interperso-nal Processes of Care | • Physician-patient interactions (communication, patient-centred decision making, and physician interpersonal style) [45]<br>• Patient perception of communication around shared decision making [28] | • Rheumatoid arthritis (n=2) [28,29]<br>• Systemic lupus erythematosus (n=1) [45] | PROM | • 29 items [45]<br>• 3 subscales (communication, decision making, and interpersonal style) [45] | • Not clear | *Validity*:<br><br>• Validated:<br>- no information in which populations [28]<br>- in socioeconomically and ethnically diverse populations of adults from general medicine practices [45]<br>*Reliability*:<br><br>• Reliable:<br>- no information in which populations [28,45] |
| Medication adherence | • Medication adherence [29] | • Rheumatoid arthritis (n=1) [29] | PROM | • 1 item [29] | • A response of 1 or greater was considered non-adherent [29] | *Validity*:<br><br>• Validated:<br>- no information in which populations [29] |
| Satisfaction with decision scale | • The results of the decision making process [30,58]<br>• Patient satisfaction with health care decisions [41,53]<br>• Consistency with personal values subscale measures whether the decision meets personal preference measures whether the decision meets personal preferences [91]<br>• Satisfaction with treatment [95] | • Lumbar degenerative diseases (n=1) [41]<br>• Rheumatoid arthritis (n=2) [53,91]<br>• Juvenile idiopathic arthritis (n=1) [53]<br>• Psoriatic arthritis (n=2) [53,91]<br>• Ankylosing spondylitis (n=2) [53,91]<br>• Granulomatosis with polyangiitis (n=1) [53]<br>• Other rheumatic diseases (n=1) [53]<br>• Fibromyalgia [30,58] (n=2)<br>• Non-specific low back pain (n=1) [95] | PROM | • 2 items (consistency with personal values subscale) [91]<br>• 6 items [41,53,58] | • Higher total scores denote higher satisfaction with a decision [41,53]<br>• Higher score indicating higher consistency with personal values [91] | *Validity*:<br><br>• Construct validity:<br>- no information in which populations [41]<br>*Reliability*:<br><br>• Reliable:<br>- in patients with rheumatic diseases and their companions [53]<br>• Internal consistency:<br>- no information in which populations [41,91]<br>- in people with rheumatic diseases and their companions [53] |
| Question-naire on Doctor-Patient Interaction (FAPI) | • Quality of physician–patient interaction from the patients' perspective (adequate imparting of information, involvement in medical decisions, and a feeling | • Fibromyalgia (n=1) [30] | PROM | • 14 items [30] | • 1–5 [30]<br>• Higher score indicating higher quality [30] | *Validity*:<br><br>• Discriminant validity:<br>- in patients from outpatient clinics for general internal medicine, diabetes, |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | of being taken seriously by the physician) [30] | | | | | rheumatology, and pain [30]<br>*Reliability*:<br><br>• Internal consistency:<br>- in patients from outpatient clinics for general internal medicine, diabetes, rheumatology, and pain [30]<br>*Feasibility*:<br><br>• Evidence of feasibility [30] |
| 9-item Shared Decision Making Question-naire | • Perceived quality of the decision process [34,41]<br>• Patient's perceived involvement in shared decision making [47,81]<br>• Perceived shared decision making [69,84] | • Knee OA (n=1) [34]<br>• Hip OA (n=1) [34]<br>• Lumbar degenerative diseases (n=1) [41]<br>• Rheumatoid arthritis (n=1) [81]<br>• Juvenile idiopathic arthritis (n=1) [47]<br>• Psoriatic arthritis (n=1) [81]<br>• Dupuytren contracture (n=1) [69]<br>• Anterior cruciate ligament injury (n=1) [84] | PROM | • 9 items [34,41,47,84] | • 0–100 [34,41,69,81]<br>• High score means high perceived level of shared decision making [34,41, 69,81,84] | *Validity*:<br><br>• Validated:<br>- no information in which populations [41,47]<br>• Construct validity:<br>- no information in which populations [69]<br>*Reliability*:<br><br>• Reliable:<br>- no information in which populations [41]<br>• Internal consistency:<br>- no information in which populations [69] |
| Princess Margaret Hospital Satisfaction with Doctor Question-naire | • Satisfaction on patients' physician interaction [35] | • Nontraumatic painful conditions of the upper extremity (n=1) [35] | PROM | • 29 items [35] | • Higher score reflects higher satisfaction with the doctor-patient inter-action [35] | *Validity*:<br><br>• Validated:<br>- in oncologic patients [35] |
| Informed Shared Decision-Making Scale | • Competencies that physicians should pursue for informed shared decision making [35] | • Nontraumatic painful conditions of the upper extremity (n=1) [35] | PROM | • 16 items [35] | • 0–32 [35]<br>• A higher coding score indicates a greater level of informed shared decision making [35] | *Validity*:<br><br>• Validated:<br>- no information in which populations [35]<br>*Reliability*:<br><br>• Reliable:<br>- no information in which populations [35] |
| Decision Regret Scale | • Distress or remorse after a decision [39,40,73, 103,106]<br>• Decisional regret [86,97, 110,121] | • Knee OA (n=6) [39,40, 86,97,103,106]<br>• Hip OA (n=4) [39,40, 103,106]<br>• Trapeziometacarpal arthritis (n=1) [121]<br>• Lumbar herniated disc (n=3) [39,40,103]<br>• Lumbar spinal stenosis (n=3) [39,40,103]<br>• Upper-extremity conditions (n=1) [73]<br>• Acute low back pain (n=1) [110] | PROM | • 5 items [39,40,73,86, 97,103,106,121] | • 0–20 [106]<br>• 0–100 [39,40,73,97, 103,110,121]<br>• Higher scores indicate more regret [39,40,73, 97,103,106,110,121] | *Validity*:<br><br>• Validated:<br>- no information in which populations [40,86,106]<br>• Correlation with other constructs:<br>- no information in which populations [103,121]<br>• Measurement invariance:<br>- no information in which populations [121]<br>*Reliability*:<br><br>• Reliable: |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | - no information in which populations [106] <br> • Internal consistency: <br> - no information in which populations [39,103] <br> - in people with low back pain [110] |
| Shared Decision-Making Process | • The extent of the interaction between the provider and patient that meet the standards of shared decision making [39] <br> • Patient involvement in decision making [40] <br> • The amount of shared decision making in the visit (including discussion of surgical procedures and non-surgical options, the advantages and disadvantages of each, and patients' preferences) [100,101] | • Knee OA (n=5) [39,40, 100,101,117] <br> • Hip OA (n=5) [39,40, 100,101,117] <br> • Lumbar herniated disc (n=4) [39,40,100,117] <br> • Lumbar spinal stenosis (n=4) [39,40,100,117] | PROM | • 4 items [39,40,101, 117] <br> • 7 items [100] | • 0–4 [39,40,101,117] <br> • 0–100 [100] <br> • Higher score indicating more involvement in the decision [39,40] <br> • Higher scores indicating more shared decision making [100,101,117] | *Validity*: <br><br> • Discriminant validity: <br> - in people with hip or knee OA [39] <br> • Predictive validity: <br> - in people with hip or knee OA [39] <br> - in people with lumbar herniated disc or lumbar spinal stenosis [39] <br> • Construct validity: <br> - in people with hip or knee OA [39] <br> - in people with lumbar herniated disc or lumbar spial stenosis for surgical decisions [117] <br> *Reliability*: <br><br> • Internal consistency: <br> - no information in which populations [39,117] <br> • Test-retest reliability: <br> - no information in which populations [39,117] |
| Trust in Surgical Decision Scale | • The level of patient trust that their surgeon will help them make a good decision about an operation [40] | • Knee OA (n=1) [40] <br> • Hip OA (n=1) [40] <br> • Lumbar herniated disc (n=1) [40] <br> • Lumbar spinal stenosis (n=1) [40] | PROM | • 5 items [40] | • 0–20 [40] <br> • Higher scores indicate higher trust [40] | *Validity*: <br><br> • Validated: <br> - no information in which populations [40] |
| Decision Self Efficacy Scale | • Patient's level of confidence in various aspects of the decision making process [42]. <br> • Measures an individual's self-confidence or belief in their ability to make decisions and engage in shared decision making. <br> • (=the certainty an individual feels in making an informed choice) [41] <br> • Self-confidence in one's abilities to participate in shared-decision making [52] <br> • Measures self-confidence in one's abilities in decision making, including shared decision making [94] | • Lumbar degenerative diseases (n=1) [41] <br> • Rheumatoid arthritis (n=1) [94] <br> • Osteoporosis (n=1) [42] <br> • Pain involving one or both knees (n=1) [52] | PROM | • 11 items [41,42,52] | • 0–100 [41] <br> • Scores of 0 and 100 indicate extremely low and extremely high self-efficacy, respectively [41] | *Validity*: <br><br> • Validated: <br> - no information in which populations [42] <br> • Discriminant validity: <br> - in people with schizophrenia [52] <br> • Convergent validity: <br> - no information in which populations [41] <br> • Correlation with other constructs: <br> - no information in which populations [52] <br> *Reliability*: <br><br> • Reliable: <br> - no information in which populations [42] <br> • Internal consistency: <br> - no information in which populations [41,52] |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| Patient-Doctor Relation-ship Question-naire | • Patient's perception of their physician as effective and helpful [46] <br> • The relationship between the physician and the patient from the patient's perspective [54] | • Knee OA (n=1) [46] <br> • Hip OA (n=1) [46] <br> • Lupus nephritis (n=1) [54] | PROM | • 9 items [46,54] | • 9–45 [46,54] <br> • Higher score indicating a greater patient's perception of the effectiveness and helpfulness of the physician [46]. <br> • Higher scores reflect a better relationship between patients and their doctors [54]. | *Validity*: <br><br> • Validated: <br> - no information in which populations [46] <br> *Reliability*: <br><br> • Internal consistency: <br> - in a primary care setting [54] |
| OPTION Scale | • Shared decision making [48] <br> • The extent to which clinicians sought to involve patients in decision making [76,78, 88,90,98] | • Knee OA (n=1) [48] <br> • Rheumatoid arthritis (n=1) [88] <br> • Osteopenia or osteoporosis (n=3) [76, 78,90] <br> • Non-chronic low back pain (n=1) [98] | CROM | • 5 items [88] <br> • 12 items [48,98] | • 0–100 [48,76,88,98] <br> • Higher scores indicate higher levels of shared decision making [88] | *Validity*: <br><br> • Validated: <br> - no information in which populations [88,98] <br> *Reliability*: <br><br> • Reliable: <br> - no information in which populations [88] |
| MASRI | • Medication adherence [54] | • Lupus nephritis (n=1) [54] | PROM | • 12 items [54] | • 0–100 [54] | *Validity*: <br><br> • Concurrent validity: <br> - no information in which populations [54] <br> • Predictive validity: <br> - no information in which populations [54] <br> *Reliability*: <br><br> • Reliable: <br> - in people with systemic lupus erythematosus [54] |
| Beliefs about Medicines Question-naire | • Patients' beliefs and concerns about taking medication for their condition [54,91] | • Rheumatoid arthritis (n=1) [91] <br> • Psoriatic arthritis (n=1) [91] <br> • Ankylosing spondylitis (n=1) [91] <br> • Lupus nephritis (n=1) [54] <br> • Osteoporosis (n=1) [93] | PROM | • 10 items [91] <br> • 18 items [54] <br> • 2 subscales (patient's beliefs about the necessity of medication and their concerns about it) [91] | • 5–25 [91] <br> • Higher scores indicate stronger beliefs about the corresponding elements in each subscale translating into more negative beliefs about medicines [54] | *Validity*: <br><br> • Predictive validity: <br> - no information in which populations [54] <br> *Reliability*: <br><br> • Internal consistency: <br> - no information in which populations [54,91] <br> • Test-retest reliability: <br> - no information in which populations [54] |
| Interperso-nal Trust in a Physician | • Overall patient trust in their individual physician [54] | • Lupus nephritis (n=1) [54] | PROM | • 10 items [54] | • Higher scores reflect higher levels of trust in the physician [54] | *Reliability*: <br><br> • Internal consistency: <br> - no information in which populations [54] <br> • Test-retest reliability: <br> - no information in which populations [54] |
| Effective Consumer Scale | • Patients' perceptions of their ability to effectively manage and participate in their healthcare [79] <br> • The main skills and behaviors that people require to manage their health effectively [82] | • Rheumatoid arthritis (n=1) [79] <br> • Osteoporosis (n=1) [82] | PROM | • 17 items [79,82] | • 0–100 [79,82] <br> • A higher score indicates better disease management skills [79, 82] | *Reliability*: <br><br> • Test-retest reliability: <br> - no information in which populations [82] |

(*continued*)

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| Medication Education Impact Question-naire | • The impact of education intervention in addressing patient needs and facilitating shared decision making and self-management [80] | • Rheumatoid arthritis (n=1) [80] | PROM | • 29 items [80]<br>• 6 subscales (Information Quality, Active Communication, Coming to Terms with Diagnosis and Treatment, Self-management Role, Self-management Capacity, and Self-management Support) [80] | • Higher=better [80] | *Reliability*:<br><br>• Internal consistency:<br>- in people with rheumatic diseases [80]<br>• Test-retest reliability:<br>- in people with rheumatic diseases [80] |
| Morisky Medication Adherence Scale | • Self-reported adherence [81,91] | • Rheumatoid arthritis (n=2) [81,91]<br>• Psoriatic arthritis (n=2) [81,91]<br>• Ankylosing spondylitis (n=1) [91] | PROM | • 4 items [81]<br>• 8 items [91] | • 0–4 [81]<br>• 0–8 [91]<br>• 0 indicating high adherence and 3–4 indicating low adherence [81]<br>• Higher scores representing more adherent behaviour [91] | *Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [91] |
| Perceived Involve-ment in Care Scale | • Involvement in decision making [110] | • Acute low back pain (n=1) [110] | PROM | • 2 subscales (Doctor Facilitation subscale and Information Exchange subscale) [110] | • 0–100 [110]<br>• Higher scores indicating a greater involvement of the health care provider (doctor facilitation subscale) [110]<br>• Higher scores indicating a greater extend of active information seeking (information exchange subscale) [110] | *Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [110] |
| Satisfaction with Information about Medicines Scale | • Satisfaction with the amount of information received [91]<br>• Patient satisfaction [93] | • Rheumatoid arthritis (n=1) [91]<br>• Psoriatic arthritis (n=1) [91]<br>• Ankylosing spondylitis (n=1) [91]<br>• Osteoporosis (n=1) [93] | PROM | • 21 items [91] | • 0–21 [91]<br>• Higher scores indicating a higher degree of overall satisfaction with the amount of information received [91] | *Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [91] |
| Decision Evaluation Scales | • Assesses (1) informed choice: the patient's perception of the quality of the received information; (2) decision control: the patient's perceived level of control over the decision in terms of feelings of regret, anxiety and deciding under pressure; and (3) satisfaction-uncertainty: the extent to which a patient is satisfied or still has doubts about the decision [91]. | • Rheumatoid arthritis (n=1) [91]<br>• Psoriatic arthritis (n=1) [91]<br>• Ankylosing spondylitis (n=1) [91] | PROM | • 15 items [91]<br>• 3 subscales (informed choice, decision control and satisfaction uncertainty) [91] | • 3–15 [91]<br>• Higher scores indicating higher levels of informed choice, decision control and higher satisfaction (less uncertainty) [91]. | *Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [91] |
| Cologne Patient Question-naire | • Trust in the physician and need for information [91] | • Rheumatoid arthritis (n=1) [91]<br>• Psoriatic arthritis (n=1) [91]<br>• Ankylosing spondylitis (n=1) [91] | PROM | • 7 items [91]<br>• 2 subscales (trust in the physician and need for information) [91] | • Higher score indicating greater trust [91]<br>• Higher score indicating higher need for information [91] | *Reliability*:<br><br>• Internal consistency:<br>- no information in which populations [91] |
| Decision readiness | • Decision readiness [119] | • Knee OA (n=1) [119] | PROM | • 1 item [119] | • Higher answers (like "very") indicate greater decision readiness [119] | *Validity*:<br><br>• Validated:<br>- no information in which populations [119] |
| Stage of Decision-Making Scale | • Stage of decision making [25,122] | • Knee OA (n=2) [25,122]<br>• Hip OA (n=2) [25,122] | PROM | • 1 item [25] | | *Validity*:<br><br>• Validated: |

*(continued)*

| Measure-ment instrument | Extracted construct | Condition(s) in which it was used | Type of measu-re | Number of items and subscales | Score, cut-off and interpretation | Information on measurement properties |
|---|---|---|---|---|---|---|
| | | | | | | - no information in which populations [122] |
| Treatment intention | • Treatment intention [123] | • Subacromial pain syndrome (n=1) [123] | PROM | • 1 item [123] | • 0–100 [123]<br>• Higher scores indicate higher intention to try surgery [123] | *Reliability*:<br><br>• Test-retest reliability:<br>- no information in which populations [123]<br>*Responsiveness*:<br><br>• Sensitive to change [123] |
| Satisfaction with decision and decision making process | • Satisfaction with decision and decision making process [91] | • Rheumatoid arthritis (n=1) [91]<br>• Psoriatic arthritis (n=1) [91]<br>• Ankylosing spondylitis (n=1) [91] | PROM | • 6 scales (satisfaction with participation, satisfaction with amount of received information, informed choice, decision control, satisfaction-uncertainty, and con-sistency with personal values) [91] | • 1–5 for satisfaction with participation subscale [91]<br>• Higher score indicating higher levels of satisfaction with participation (for satisfaction with participation subscale) [91] | *Reliability*<br><br>• Internal consistency:<br>- within the Nota's study sample [91] |
| Decision process | • Decision process [102] | • Knee OA (n=1) [102]<br>• Hip OA (n=1) [102] | PROM | • 4 items [102] | • 0–100 [102]<br>• Higher score indicating more involvement [102] | *Reliability*<br><br>• Internal consistency:<br>- within the Sepucha's study sample [102]<br>• Test-retest reliability:<br>- within the Sepucha's study sample [102] |
| Knowledge on acute low back pain | • Patient knowledge on acute low back pain [110] | • Acute low back pain (n=1) [110] | PROM | • 10 items [110] | | *Reliability:*<br><br>• Internal consistency:<br>- within the Simon's study sample [110] |

OA: osteoarthritis

PROM: patient reported outcome measure

DQI: Decision Quality Instruments

FAPI: *Fragebogen zur Arzt-Patienten-Interaktion*

OPTION Scale: Observing Patient Involvement in Decision Making instrument

CROM: clinician reported outcome measure.

MASRI: Medication Adherence Self-Report Inventory

## Appendix C. Characteristics of the measurement instruments without any measurement properties reported by the included studies

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| Knowledge | | | | |
| Knowledge about rheumatoid arthritis medications* | • Rheumatoid arthritis [29] | PROM | 8 items | Scores of 7 out of 8 correct answers were considered adequate rheumatoid arthritis knowledge |
| Knowledge about acupuncture* | • Back pain [32] | PROM | 10 items | The total number of items answered correctly |
| Knowledge, skill, and confidence in self-management concerning health problem (Patient Activation Measure) | • Hip OA [34]<br>• Knee OA [34]<br>• Anterior shoulder dislocation [64]<br>Rheumatoid arthritis or psoriatic arthritis [81] | PROM | 6 items [64]<br>13 items [34, 81] | 0–100 [34,64,81]<br>Higher scores indicating more patient activation [34,64,81] |
| Knowledge about OA of the hip and knee* | • Hip OA [36]<br>• Knee OA [36] | PROM | 19 items | |
| Knowledge about osteoporosis and the available treatments | Osteoporosis [42] | PROM | 27 items | |
| Knowledge about knee OA options* | Knee OA [44] | PROM | 5 items | |
| Knowledge related to biologics* | Rheumatoid arthritis [51] | PROM | 20 items | |
| Knowledge about carpal tunnel syndrome* | Carpal tunnel syndrome [55] | PROM | 10 items | 0–10 |
| Knowledge retention | Anterior shoulder dislocation [64] | | | |
| Knowledge about total knee replacement* | Knee OA [66] | Interview | 3 questions | |
| Knowledge about treatment options* | Spinal stenosis [70] | PROM | 5 items | |
| Knowledge about osteoporosis and treatment options | Osteopenia or osteoporosis [78] | PROM | 13 items | |

(*continued*)

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| Knowledge of rheumatoid arthritis and treatment, and perceived self-management behaviors (Partners in Health Scale) | Rheumatoid arthritis [80] | PROM | 11 items | • 0–88 [80]<br>• Higher score indicating better knowledge [80] |
| Knowledge about etanercept | Rheumatoid arthritis [87] | PROM | 12 items | 0–12 |
| Patient knowledge | Osteoporosis [90] | | | |
| Knowledge about neuromuscular scoliosis treatment | Parent(s) of a child with neuromuscular scoliosis [108] | PROM | 5 items | |
| Knowledge about hip or knee OA disease progression and total hip or knee arthroplasty* | • Hip OA [109]<br>• Knee OA [109] | PROM | 5 items | 0–5 |
| Knowledge about OA and total knee replacement | Knee OA [115] | PROM | 7 items | 0–100 |
| Knowledge about treatment options and risks | • Hip OA [118]<br>• Knee OA [118] | PROM | 4 items | 0–4 |
| Knowledge about options* | Subacromial pain syndrome [123] | PROM | 7 items | 0–7 |
| STAGE OF DECISION | | | | |
| Preparation to make a decision on their preference* | Knee OA [44] | | 1 item | |
| Decision making stage* | • Hip OA [63]<br>• Knee OA [63] | PROM | 1 item | |
| Stage of decision making* | Anterior shoulder dislocation [64] | PROM | 1 item | |
| Stage of decision making* | Spinal stenosis [70] | PROM | 1 item | |
| Stage of decision making | • Hip OA [109]<br>• Knee OA [109] | PROM | 1 item | |
| Stage of decision making | • Hip OA [118]<br>• Knee OA [118] | | | |
| Stage of decision making* | Knee OA [120] | PROM | 1 item | 1–6 |
| VALUES AND PREFERENCES | | | | |
| Value concordance | Knee OA [27] | Analysis | | |
| Treatment preference* | Knee OA [27] | PROM | 1 item | |
| Values | Osteoporosis [42] | PROM | 2 items | |
| Choice predisposition | Osteoporosis [42] | PROM | 1 item | |
| Treatment alignment | Knee OA [48] | Analysis | | |
| Values | Knee OA [48] | PROM | 1 item | |
| Values | Rheumatoid arthritis [51] | PROM | 10 items | |
| Preference towards biosimilars* | • Rheumatoid arthritis [53]<br>• Ankylosing spondylitis [53]<br>• Psoriatic arthritis [53]<br>• Granulomatosis with polyangiitis [53]<br>• Juvenile idiopathic arthritis [53]<br>• Other rheumatic diseases [53] | PROM | 1 item | • 0–10<br>• Higher score indicating stronger preferences for biosimilars |
| Influential values of patient regarding drug treatment | Rheumatic diseases [57] | Analysis | | |
| Treatment preference* | • Hip OA [63]<br>• Knee OA [63] | PROM | 1 item | |
| Treatment alignment with evidence-based treatment | Anterior shoulder dislocation [64] | Analysis | | |
| Importance* | Knee OA [66] | PROM | 3 items | |
| Values and goals* | Knee OA [66] | PROM | 2 items | |
| Summarizing pros and cons* | Knee OA [66] | PROM | 2 items | |
| Treatment concordance* | Knee OA [68] | PROM | 1 item | |
| Treatment preference fit index | Rheumatoid arthritis [83] | Analysis | | |
| Treatment preference | Knee OA [97] | PROM | 1 item | |
| Treatment preference | • Hip OA [109]<br>• Knee OA [109] | PROM | 1 item | |
| Values* | Psoriatic arthritis [114] | Interview | 3 questions | |
| Importance given to certain characteristics and potential outcomes of OA treatments | Knee OA [115] | PROM | | |
| Treatment preference | Knee OA [115] | PROM | 1 item | |
| Treatment preference | • Hip OA [118]<br>• Knee OA [118] | PROM | | |
| DECISION | | | | |
| Treatment decision | Knee OA [27] | Chart review | | |
| Treatment choice* | Hip OA [36]<br>Knee OA [36] | PROM | 1 item | |
| Informed choice | Hip OA [39]<br>Knee OA [39]<br>Lumbar herniated disc [39]<br>Lumbar spinal stenosis [39] | Analysis | | |
| Choice | Osteoporosis [42] | PROM | 1 item | |
| Informed choice | Rheumatoid arthritis [51] | Analysis | | |
| Informed choice | Rheumatoid arthritis [50] | Analysis | | |
| Confidence with the decision (Subscale of the Combined Outcome Measure for Risk Communication) | Rheumatoid arthritis [50] | PROM | 10 items | |
| Treatment choice | Upper-extremity conditions [73] | PROM | 1 item | |
| Treatment choice | Displaced diaphyseal clavicle fractures [77] | | | |

(*continued*)

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| Decision to start biphosphonates | Osteoporosis [78] | | | |
| Decision regret* | • Hip OA [102]<br>• Knee OA [102] | PROM | 1 item | |
| Decision confidence* | • Hip OA [102]<br>• Knee OA [102] | PROM | 1 item | |
| Treatment received | • Hip OA [106]<br>• Knee OA [106] | Record | | |
| Informed, patient-centred decision | • Hip OA [106]<br>• Knee OA [106] | Analysis | | |
| Treatment decision | Osteopenia or osteoporosis [111] | PROM | | |
| Decision quality* | • Hip OA [113]<br>• Knee OA [112,113] | Analysis | | |
| Informed, patient-centred decision | • Hip OA [117]<br>• Knee OA [117]<br>• Lumbar herniated disc [117]<br>• Lumbar spinal stenosis [117] | Analysis | | |
| Patient had made their definitive decision after the first visit | • Hip OA [118]<br>• Knee OA [118] | PROM | | |
| Decision readiness* | Knee OA [120] | PROM | 1 item | |
| Treatment choice | Trapeziometacarpal arthritis [121] | | | |
| Treatment choice | • Hip OA[122]<br>Knee OA [122] | | | |
| Informed, patient centred decision | • Hip OA [122]<br>• Knee OA [122] | Analysis | | |
| Informed choice | Subacromial pain syndrome [123] | Analysis | | |
| WILLINGNESS | | | | |
| Willingness to have surgery | Knee OA [27] | | | |
| Willingness to have acupuncture* | Back pain [32] | PROM | 1 item | |
| Willingness to take a (new) biological treatment* (Choice Predisposition Scale) | Rheumatoid arthritis [51] | PROM | 1 item | |
| Willingness to change to a biosimilar* | • Rheumatoid arthritis [53]<br>• Ankylosing spondylitis [53]<br>• Psoriatic arthritis [53]<br>• Granulomatosis with polyangiitis [53]<br>• Juvenile idiopathic arthritis [53]<br>• Other rheumatic diseases [53] | PROM | 1 item | |
| Willingness to have surgery (Choice Predisposition Scale) | Knee OA [59] | PROM | 1 item | |
| Willingness to undergo total knee replacement if recommended by the surgeon | Knee OA [65] | PROM | 1 item | |
| Willingness to consider total knee replacement* | Knee OA [120] | PROM | 1 item | |
| DURATION OF ENCOUNTER | | | | |
| Length of consultation time | • Hip OA [36]<br>• Knee OA [36] | Analysis | | |
| Duration of the visit | Orthopaedic surgery [37] | Analysis | | |
| Duration of consultations | Knee OA [68] | Analysis | | |
| Duration of encounters | Osteopenia or osteoporosis [78] | Analysis | | |
| SATISFACTION | | | | |
| Satisfaction with the visit* | • Hip OA [36]<br>• Knee OA [36] | PROM | 1 item | 0–10 |
| Overall satisfaction* | • Hip OA [39]<br>• Knee OA [39]<br>• Lumbar herniated disc [39]<br>• Lumbar spinal stenosis [39] | PROM | 1 item | |
| Satisfaction with decision | Acute musculoskeletal pain [60] | PROM | 1 item | |
| Satisfaction with treatment | Acute musculoskeletal pain[60] | PROM | 1 item | |
| Satisfaction with treatment choice* | Orthopaedic injuries[67] | PROM | 1 item | |
| Satisfaction with consultation | Knee OA[68] | PROM | 1 item | |
| Satisfaction* | Dupuytren contracture[69] | Interview | 2 questions | |
| Satisfaction with care* | • Rheumatoid arthritis[72]<br>• Ankylosing spondylitis[72] | PROM | 1 item | |
| Satisfaction with the visit | Upper-extremity conditions[73] | PROM | 1 item | |
| Overall satisfaction with care* | Spinal disorders[74] | PROM | 1 item | |
| Satisfaction with pain care (Pain Treatment Satisfaction Scale) | Musculoskeletal pain[75] | PROM | 18 items | 0–100<br>Higher scores indicate greater satisfaction |
| Satisfaction with treatment* | Rheumatoid arthritis[83] | PROM | 1 item | |
| Satisfaction with results of knee replacement* | Knee OA[86] | PROM | 3 items | |
| Satisfaction with knowledge transfer | Osteoporosis[90] | | | |
| Satisfaction with decision making process* | • Rheumatoid arthritis[92]<br>• Psoriatic arthritis[92]<br>• Ankylosing spondylitis[92] | PROM | 1 item | |
| Satisfaction with decision | Non-specific low back pain[95] | | | |
| Satisfaction with treatment | Non-specific low back pain[95] | | | |

(*continued*)

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| Satisfaction with decision making process | Knee OA[97] | PROM | 12 items | |
| Patient's satisfaction with how their treatment turned out | • Hip OA[103] | | | |
| | • Knee OA[103] | | | |
| | • Lumbar herniated disc[103] | | | |
| | • Lumbar spinal stenosis[103] | | | |
| Patient's satisfaction with their current pain and symptoms | • Hip OA[103] | | | |
| | • Knee OA[103] | | | |
| | • Lumbar herniated disc[103] | | | |
| | • Lumbar spinal stenosis[103] | | | |
| Satisfaction with treatment* | • Hip OA[106] | PROM | 1 item | |
| | • Knee OA[106] | | | |
| Satisfaction with their current pain | • Hip OA[106] | PROM | 1 item | |
| | • Knee OA[106] | | | |
| Satisfaction with shared decision making | • Rheumatoid arthritis[107] | | | |
| | • Psoriatic arthritis[107] | | | |
| | • Axial spondylarthritis[107] | | | |
| Parent's satisfaction with shared decision making | Neuromuscular scoliosis[108] | PROM | | |
| Satisfaction regarding education and knowledge* | • Hip OA[109] | PROM | 1 item | |
| | • Knee OA[109] | | | |
| Satisfaction with received information* | Psoriatic arthritis[114] | Interview | 2 questions | |
| Satisfaction with decision making process | Knee OA[115] | PROM | 12 items | 0–100 |
| Overall satisfaction with care* | Midshaft clavicle fracture [116] | PROM | 7 items | |
| Patients' satisfaction with the given information, the clinic, and the physician | • Hip OA[118] | PROM | 3 items | |
| | • Knee OA[118] | | | |
| Satisfaction with the visit* | Trapeziometacarpal arthritis[121] | PROM | 1 item | |
| Overall treatment satisfaction* | Trapeziometacarpal arthritis[121] | PROM | 1 item | |
| EXPECTATIONS | | | | |
| Realistic expectations* | Osteoporosis[42] | PROM | 5 items | The score for realistic expectations was the percent of accurate responses out of the five questions. |
| Expectations about knee replacement post-surgery* | Knee OA[86] | PROM | 1 item | |
| Realistic expectations* | • Hip OA[113] | Analysis | | |
| | • Knee OA[113] | | | |
| RISK | | | | |
| Risk communication (Subscale of the Combined Outcome Measure for Risk Communication) | Rheumatoid arthritis[50] | PROM | 10 items | |
| Perceptions of cognitive and affective risk* | • Rheumatoid arthritis[53] | PROM | 1 item | |
| | • Ankylosing spondylitis[53] | | | |
| | • Psoriatic arthritis[53] | | | |
| | • Granulomatosis with polyangiitis [53] | | | |
| | • Juvenile idiopathic arthritis[53] | | | |
| | • Other rheumatic diseases[53] | | | |
| SUPPORT/RELATIONSHIP | | | | |
| Practical and emotional support received by accompanied patients during the decision process* | • Rheumatoid arthritis[53] | PROM | 2 items | |
| | • Ankylosing spondylitis[53] | | | |
| | • Psoriatic arthritis[53] | | | |
| | • Granulomatosis with polyangiitis [53] | | | |
| | • Juvenile idiopathic arthritis[53] | | | |
| | • Other rheumatic diseases[53] | | | |
| Support* | Dupuytren contracture[69] | PROM | 1 item | |
| Relationship and communication with clinicians* | Psoriatic arthritis[114] | Interview | 3 questions | |
| OTHER | | | | |
| Explanation understanding* | • Rheumatoid arthritis[53] | PROM | 1 item | |
| | • Ankylosing spondylitis[53] | | | |
| | • Psoriatic arthritis[53] | | | |
| | • Granulomatosis with polyangiitis [53] | | | |
| | • Juvenile idiopathic arthritis[53] | | | |
| | • Other rheumatic diseases[53] | | | |
| Reassurance* | • Rheumatoid arthritis[53] | PROM | 1 item | |
| | • Ankylosing spondylitis[53] | | | |
| | • Psoriatic arthritis[53] | | | |
| | • Granulomatosis with polyangiitis [53] | | | |
| | • Juvenile idiopathic arthritis[53] | | | |
| | • Other rheumatic diseases[53] | | | |
| Preference in receiving information accompanied* | • Rheumatoid arthritis[53] | PROM | 1 item | |
| | • Ankylosing spondylitis[53] | | | |
| | • Psoriatic arthritis[53] | | | |
| | • Granulomatosis with polyangiitis [53] | | | |
| | • Juvenile idiopathic arthritis[53] | | | |

(continued)

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| | • Other rheumatic diseases[53] | | | |
| Awareness of making a preference-sensitive decision | Anterior shoulder dislocation[64] | | | |
| Discussion of knee pain with primary care provider* | Knee OA[66] | Interview | 7 questions | |
| Readiness* | Knee OA[66] | PROM | 2 items | |
| Confidence* | Knee OA[66] | PROM | 1 item | |
| Received information* | • Rheumatoid arthritis[72] | PROM | 3 items | |
| | • Ankylosing spondylitis[72] | | | |
| Unmet health care needs* | • Rheumatoid arthritis[72] | PROM | 2 items | |
| | • Ankylosing spondylitis[72] | | | |
| Overall experience with decision making process* | Knee OA[96] | PROM | 2 items | |
| Confidence with current understanding* | Psoriatic arthritis[114] | Interview | 2 questions | |
| Beliefs about effectiveness of joint replacement* | Knee OA[120] | PROM | 1 item | |
| Change of treatment | Trapeziometacarpal arthritis[121] | Analysis | | |
| Perception of the physician's empathic understanding during the office visit (Consultation and Relational Empathy Scale) | Trapeziometacarpal arthritis[121] | PROM | 10 items | 0–50[121] Higher score indicating greater empathy[121] |
| Attitudes towards surgery | Subacromial pain syndrome[123] | PROM | 3 items | 3–21 |
| SHARED DECISION MAKING | | | | |
| Informed decision making* | Orthopaedic surgery[37] | CROM | 9 elements | |
| Shared decision making process* | Anterior cruciate ligament injury[56] | PROM | 10 items | |
| Specific aspects of shared decision making* | Rheumatoid arthritis[61] | CROM | | |
| Components of shared decision making* | Orthopaedic injuries[67] | PROM | 2 items | |
| Decision making process* | Dupuytren contracture[69] | Interview | 11 questions | |
| Involvement in decisions* | • Rheumatoid arthritis[72] | PROM | 2 items | |
| | • Ankylosing spondylitis[72] | | | |
| Shared decision making* | Lumbar spine conditions (postsurgery) [74] | PROM | 4 items | |
| Medication-related shared decision making (Consumer Assessment of Healthcare Provider and System survey) | Musculoskeletal pain[75] | | 3 items | |
| Preferences for shared decision making* | Rheumatoid arthritis[83] | PROM | 2 items | |
| Patients' experience of shared decision making | Anterior cruciate ligament injury[84] | Interview | | |
| Patient-reported shared decision making* | Non-chronic low back pain[98] | PROM | 1 item | |
| The reasons women present when expressing hesitation about initiation of bisphosphonates during primary care consultations with clinicians and how these clinicians react* | Osteoporosis[99] | CROM | 7 categories | |
| Decision making participation | • Hip OA[109] | PROM | 2 items | |
| | • Knee OA[109] | | | |
| Preference for participation | Acute low back pain[110] | PROM | 1 item | |
| Patient-reported shared decision making | Osteopenia or osteoporosis[111] | PROM | | |
| Control when making a decision* | Psoriatic arthritis[114] | Interview | 1 question | |
| Decision making process* | Psoriatic arthritis[114] | Interview | 3 questions | |
| ADHERENCE | | | | |
| Compliance | Juvenile idiopathic arthritis[47] | Analysis | | |
| Persistence | Juvenile idiopathic arthritis[47] | Analysis | | |
| Medication adherence (assumed as compliance) | Osteoporosis[49] | Analysis | | |
| Medication adherence (assumed as persistence) | Osteoporosis[49] | Analysis | | |
| Continuance rate of treatment | Rheumatic diseases[57] | | | |
| Having undergone arthroplasty | • Hip OA[62] | Medical record | | |
| | • Knee OA[62] | | | |
| Receipt of total knee replacement | Knee OA[65] | Medical record | | |
| Total knee replacement rates | Knee OA[68] | | | |
| Analgesic adherence (Pain Medication in Primary Care Patient Questionnaire) | Musculoskeletal pain[75] | PROM | 4 items | |
| Primary adherence | Osteoporosis[78] | Analysis | | |
| Secondary adherence | Osteoporosis[78] | Analysis | | |
| Medication adherence* | Osteoporosis[90] | PROM | 1 item | |
| Medication adherence | Osteoporosis[90] | Analysis | | |
| Persistence | Osteoporosis[90] | Analysis | | |
| Compliance | Osteoporosis[93] | Analysis | | |
| Attendance at routine clinics and self-report compliance (Medication Adherence Report Scale) | Osteoporosis[93] | | | |
| Having undergone total knee replacement | Knee OA[97] | | | |
| Having undergone surgery | • Hip OA[100] | Medical record | | |
| | • Knee OA[100] | | | |
| | • Lumbar herniated disc[100] | | | |
| | • Lumbar spinal stenosis[100] | | | |
| Treatment received (assumed as having undergone surgery) | • Hip OA[103] | Medical record | | |
| | • Knee OA[103] | | | |
| | • Lumbar herniated disc[103] | | | |
| | • Lumbar spinal stenosis[103] | | | |
| Treatment adherence | Acute low back pain[110] | | | |
| Surgical rate (assumed as having undergone surgery) | • Hip OA[113] | Clinic data | | |

(*continued*)

| Measured construct and its definition | Condition(s) in which it was used | Type of measure | Number of items and subscales | Score, cut-off, and interpretation |
|---|---|---|---|---|
| Having undergone total knee replacement | • Knee OA[113]<br>Knee OA[115] | PROM | 1 item | |

PROM: patient reported outcome measure

OA: osteoarthritis

CROM: clinician reported outcome measure.

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