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Instruments to measure shared decision-making in outpatient chronic care: a systematic review and appraisal

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1. Background

Patient involvement during chronic disease care improves outcomes [1]. One approach to foster involvement is mutual patient-provider decision-making about a plan of care termed, “shared decision-making” (SDM) [2]. Initiatives including Evidence Communication Innovation Collaborative have promoted SDM prompting a closer look at how decisions are jointly made [3]. Still, the rate at which providers involve patients in decision-making remains low [4]. Despite increasing demands for SDM, effectiveness in chronic disease care has not been well described [5,6], likely because no “gold standard” measuring SDM in research and practice exists [7].

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CRedit authorship contribution statement

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While SDM instruments have been tested, few undergo comprehensive psychometric evaluation thus questioning how robustly the instrument performs. Rigorous appraisals of SDM instruments are warranted. The aim of this study was to (1) evaluate reliability and validity of existing instruments; (2) assess each instrument's ability to capture SDM elements.

2. Theoretical underpinnings

Makoul et al. [8] proposes that SDM is composed of 23 elements, nine of which are essential and 14 elements considered ideal (e.g., presenting evidence) and/or general (e.g., partnership).

3. Methods

A comprehensive search was conducted across five electronic databases using PRISMA [9] guidelines. We also searched for gray literature (abstracts, conference proceedings, and unpublished manuscripts). Inclusion criteria stipulated that manuscripts be English language reports of SDM instrument development, with testing, and validation in ambulatory chronic disease care.

Three researchers performed psychometric appraisal using Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) checklist [10] to evaluate nine measurement properties: internal consistency, reliability, measurement error, content validity, construct validity, criterion validity, and responsiveness. The researchers next evaluated each instrument to determine the presence of SDM elements.

4. Results

Sixteen instruments across 30 studies were eligible for appraisal (See Table 1).

Instruments measured SDM from different perspectives: provider ($n = 4$), patient ($n = 11$), and/or observer ($n = 7$). Internal consistency reliability was highest among individual care [16] ($r = .96$), SDM-Q-9 [32,33] ($r = .94$), and MAPPIN'SDM [18,19] ($r = .94$). Most studies did not describe the handling of missing data thus threatening internal consistency. Concurrent and convergent validity was tested in 12 instruments. Construct validity was reported for eight instruments. Goodness of fit and differential item functioning was rarely reported.

Overall, SDM-Q-9 [32,33] and the adaptations of OPTION [20,23,25,27] included the most elements. Seven of the sixteen instruments met 100% essential SDM elements. Five instruments missed "Arrangement of follow-up". Only OPTION5 [20] was found to have all 4 "ideal" elements.

5. Discussion

Our review suggests that SDM-Q-9 [32,33] and the adaptations of OPTION [20,23,25,27] are superior to other instruments measuring SDM evidenced by high reliability, validity, and

presence of SDM elements. Because SDM involves a set of reciprocal behaviors, it is unclear whether instruments from the perspective of an observer are reliable given low correlations between observer assessments of SDM and patient reports [4].

6. Conclusion

This study evaluated reliability, validity, and inclusion of SDM elements across 16 instruments. It appears SDM-Q-9 [32,33] and versions of OPTION [20,23,25,27] have the most robust psychometric testing and were most inclusive of items capturing SDM elements. Further testing is needed to establish the acceptability and feasibility of instrument use in clinical and research settings.

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References

- [1]. Swanson KA, Bastani R, Rubenstein LV, Meredith LS, Ford DE. Effect of mental health care and shared decision making on patient satisfaction in a community sample of patients with depression. *Med Care Res Rev* 2007;64(4):416–30. [PubMed: 17684110]
- [2]. Hoffmann T, Tooth L. Shared decision making In: Hoffmann BS, Del Mar C, editors. *Evidence-based practice across the health professions-E-pub*. Edition: 3rd Australia: Elsevier; 2017:337 Available at: <https://www.elsevier.com/books/evidence-based-practice-across-the-health-professions/hoffmann/978-0-7295-4255-5>. Accessed November 20, 2018.
- [3]. Alston C, Brownlee S, Elwyn G, Fowler FJ Jr, Kelly Hall L, Montori VM, et al. Shared decision-making strategies for best care: patient decision aids. 2014 Available at <https://nam.edu/perspectives-2014-shared-decision-making-strategies-for-best-care-patient-decision-aids/>. 10.31478/201409f. Accessed November 20, 2018.
- [4]. Couët N, Desroches S, Robitaille H, Vaillancourt H, Leblanc A, Turcotte S, et al. Assessments of the extent to which health-care providers involve patients in decision making: a systematic review of studies using the OPTION instrument. *Health Expect* 2015;18: 542–61. [PubMed: 23451939]
- [5]. Légaré F, Witteman HO. Shared decision making: examining key elements and barriers to adoption into routine clinical practice. *Health Aff (Millwood)* 2013;32(2):276–84. [PubMed: 23381520]
- [6]. Shay LA, Lafata JE. Where is the evidence? A systematic review of shared decision making and patient outcomes. *Med Decis Making* 2015;35:114–31. [PubMed: 25351843]
- [7]. Nicolai J, Moshagen M, Eich W, Bieber C. The OPTION scale for the assessment of shared decision making (SDM): methodological issues. *Z Evid Fortbild Qual Gesundhwes* 2012;106(4):264–71. [PubMed: 22749073]
- [8]. Makoul G, Clayman ML. An integrative model of shared decision making in medical encounters. *Patient Educ Couns* 2006;60(3): 301–12. [PubMed: 16051459]
- [9]. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Ann Intern Med* 2009;151:264–9. [PubMed: 19622511]
- [10]. Terwee CB, Mokkink LB, Knol DL, Ostelo RWJG, Bouter LM, de Vet HCW. Rating the methodological quality in systematic reviews of studies on measurement properties: a scoring system for the COSMIN checklist. *Qual Life Res* 2011;21:651–7. [PubMed: 21732199]

Web Appendix

- [11]. Barr PJ, Thompson R, Walsh T, Grande SW, Ozanne EM, Elwyn G. The psychometric properties of CollaboRATE: a fast and frugal patient-reported measure of the shared decision-making process. *J Med Internet Res* 2014;16(1):e2. [PubMed: 24389354]
- [12]. Forcino RC, Bustamante N, Thompson R, Percac-Lima S, Elwyn G, Perez-Arechaederra D, et al. Developing and pilot testing a Spanish translation of CollaboRATE for use in the United States. *PLoS One* 2016;11:e0168538. [PubMed: 28002422]
- [13]. Rosenberg D, Schön U-K, Nyholm M, Grim K, Svedberg P. Shared decision making in Swedish community mental health services—an evaluation of three self-reporting instruments. *J Ment Health* 2017; 26(2):142–9. [PubMed: 27452763]
- [14]. Edwards A, Elwyn G, Hood K, Robling M, Atwell C, Holmes-Rovner M, et al. The development of COMRADE—a patient-based outcome measure to evaluate the effectiveness of risk communication and treatment decision making in consultations. *Patient Educ Couns* 2003;50(3):311–22. [PubMed: 12900105]
- [15]. Clayman ML, Makoul G, Harper MM, Koby D, Williams A. Development of a shared decision making coding system for analysis of patient-healthcare provider encounters. *Patient Educ Couns* 2012; 88(3):367–72. [PubMed: 22784391]
- [16]. Suhonen R, Valimäki M, Katajisto J. Developing and testing an instrument for the measurement of individual care. *J Adv Nurs* 2000; 32:1253–63. [PubMed: 11115011]
- [17]. Weiss MC, Peters TJ. Measuring shared decision making in the consultation: a comparison of the OPTION and Informed Decision Making instruments. *Patient Educ Couns* 2008;70(1):79–86. [PubMed: 17942270]
- [18]. Kasper J, Hoffmann F, Heesen C, Köpke S, Geiger F. MAP-PIN'SDM—the multifocal approach to sharing in shared decision making. *PLoS One* 2012;7:e34849. [PubMed: 22514677]
- [19]. Kienlin S, Kristiansen M, Ofstad E, Liethmann K, Geiger F, Joranger P, et al. Validation of the Norwegian version of MAPPIN'SDM, an observation-based instrument to measure shared decision-making in clinical encounters. *Patient Educ Couns* 2017; 100(3):534–41. [PubMed: 28029570]
- [20]. Elwyn G, Tsulukidze M, Edwards A, Légaré F, Newcombe R. Using a 'talk' model of shared decision making to propose an observation-based measure: observer OPTION(5 Item.). *Patient Educ Couns* 2013;93(2):265–71. [PubMed: 24029581]
- [21]. Stubenruch FE, Pieterse AH, Falkenberg R, Santema KB, Stiggelbout AM, van der Weijden T, et al. OPTION(5) versus OPTION(12) instruments to appreciate the extent to which healthcare providers involve patients in decision-making. *Patient Educ Couns* 2016;99(6):1062–8. [PubMed: 26776490]
- [22]. Vortel MA, Adam S, Port-Thompson AV, Friedman JM, Grande SW, Birch PH. Comparing the ability of OPTION(12) and OPTION(5) to assess shared decision-making in genetic counselling. *Patient Educ Couns* 2016;99(10):1717–23. [PubMed: 27085518]
- [23]. Elwyn G, Edwards A, Wensing M, Hood K, Atwell C, Grol R. Shared decision making: developing the OPTION scale for measuring patient involvement. *Qual Saf Health Care* 2003;12:93–9. [PubMed: 12679504]
- [24]. Hirsch O, Keller H, Müller-Engelmann M, Gutenbrunner MH, Krones T, Donner-Banzhoff N. Reliability and validity of the German version of the OPTION scale. *Health Expect* 2012;15: 379–88. [PubMed: 21521432]
- [25]. Melbourne E, Sinclair K, Durand MA, Legare F, Elwyn G. Developing a dyadic OPTION scale to measure perceptions of shared decision making. *Patient Educ Couns* 2010;78(2):177–83. [PubMed: 19647970]
- [26]. Melbourne E, Roberts S, Durand MA, Newcombe R, Légaré F, Elwyn G. Dyadic OPTION: measuring perceptions of shared decision-making in practice. *Patient Educ Couns* 2011;83(1): 55–7. [PubMed: 20537837]
- [27]. Elwyn G, Hutchings H, Edwards A, Rapport F, Wensing M, Wai-Yee C, et al. The OPTION scale: measuring the extent that clinicians involve patients in decision-making tasks. *Health Expect* 2005;8:34–42. [PubMed: 15713169]

- [28]. Glasgow RE, Wagner EH, Schaefer J, Mahoney LD, Reid RJ, Greene SM. Development and validation of the patient Assessment of chronic illness care (PACIC). *Med Care* 2005;43:436–44. [PubMed: 15838407]
- [29]. Lerman CE, Brody DS, Caputo GC, Smith DG, Lazaro CG, Wolfson HG. Patients' perceived involvement in care scale: relationship to attitudes about illness and medical care. *J Gen Intern Med* 1990;5:29–33. [PubMed: 2299426]
- [30]. Geiger F, Kasper J. Of blind men and elephants: suggesting SDM-MASS as a compound measure for shared decision making integrating patient, physician and observer views. *Z Evid Fortbild Qual Gesundheitswes* 2012;106(4):284–9.
- [31]. Simon D, Schorr G, Wirtz M, Vodermaier A, Caspari C, Neuner B, et al. Development and first validation of the shared decision-making questionnaire (SDM-Q). *Patient Educ Couns* 2006;63(3):319–27. [PubMed: 16872793]
- [32]. Kriston L, Scholl I, Hölzel L, Simon D, Loh A, Härter M. The 9-item Shared Decision Making Questionnaire (SDM-Q-9). Development and psychometric properties in a primary care sample. *Patient Educ Couns* 2010;80(1):94–9. [PubMed: 19879711]
- [33]. Rodenburg-Vandenbussche S, Pieterse AH, Kroonenberg PM, Scholl I, van der Weijden T, Luyten GPM, et al. Dutch translation and psychometric testing of the 9-item shared decision making questionnaire (SDM-Q-9) and shared decision making questionnaire-physician version (SDM-Q-Doc) in primary and secondary care. *PLoS One* 2015;10(7):e0132158. [PubMed: 26151946]
- [34]. Scholl I, Kriston L, Dirmaier J, Härter M. Comparing the nine-item shared decision-making questionnaire to the OPTION Scale - an attempt to establish convergent validity. *Health Expect* 2015;18: 137–50. [PubMed: 23176071]
- [35]. Scholl I, Kriston L, Dirmaier J, Buchholz A, Härter M. Development and psychometric properties of the shared decision making questionnaire-physician version (SDM-Q-Doc). *Patient Educ Couns* 2012;88(2):284–90. 10.1016/j.jclinepi.2020.01.001 [PubMed: 22480628]

What is new?

Key findings

- Our findings determined that SDM-Q-9 and the various adaptations of OPTION appear to be the most robustly tested instruments and include the most elements of shared decision making.

What this adds to what was known?

- After systematically evaluating 16 instruments, the measurement of shared decision making remains variable across studies and settings.

What is the implication and what should change now?

- Future research that further establishes the psychometric properties of instruments measuring SDM, in addition to testing the feasibility and acceptability, is warranted.

Table 1
Comparison of shared decision-making instruments by measurement properties and integrative model elements

Instrument characteristics	CollaborATE [11-13]	COMRADE [14]	DEEP-SDM [15]	Individual curv [16]	Informed decision making [17]	MAPPIN/SDM [18,19]	OPTIONS [20-22]	OPTION/ OPTION (visited) [7,23,24]	OPTION (dynamic) [25,26]	OPTION12 [21,22,27]	PACIC [28]	PICS [29]	SDM MASS [30]	SDM-Q [31]	SDM-Q-9 [11,32-34]	SDM-Q-Doc [35]
Instrument perspective	P	P	O	P	O	CPO	O	CP	O	P	P	P	CPO	P	P	C
Number of items	3	20	-	37	9	11	5	12	12	12	20	25	15	15	9	9
Internal consistency reliability (Cronbach's alpha)	0.9			0.96		0.87	0.79	0.68	0.9	0.68	0.94	0.73	0.87	0.77	0.94	0.91
Construct validity																
Makoul's integrative SDM model [8]																
1. Essential SDM elements																
Define/explain problem																
Present options																
Discuss pros/cons																
Patient values/preferences																
Discuss patient ability/self-efficacy																
Doctor knowledge/recommendations																
Check/clarify understanding																
Make or explicitly defer decision																
Arrange follow-up																
2. Ideal SDM elements																
Unbiased information																
Define roles																
Present evidence																
Mutual agreement																
3. General SDM qualities																
De liberation/negotiation																
Flexibility/individualized approach																
Information exchange																
Involves at least two people																
Middle ground																
Mutual respect																
Partnership																
Patient education																
Patient participation																
Process/stages																
Total elements	9	18	18	8	18	15	22	22	20	21	12	20	15	22	22	22

Abbreviations: SDM, shared decision-making; C, clinician reported; P, patient reported; O, observer reported; COSMIN, Consensus-based Standards for the Selection of Health Measurement Instruments.

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