

RESEARCH PAPER

Shared decision-making for the treatment of proximal femoral fractures in frail institutionalised older patients: healthcare providers' perceived barriers and facilitators

INGE SPRONK¹, SVERRE A.I. LOGGERS^{2,3}, PIETER JOOSSE², HANNA C. WILLEMS⁴, ROMKE VAN BALEN⁵, TACO GOSENS⁶, KORNELIS J. PONSEN^{2,7}, JEROEN STEENS⁸, L.C.P. (MARC) VAN DE REE⁹, RUTGER G. ZUURMOND¹⁰, MICHAEL H.J. VERHOFSTAD³, ESTHER M.M. VAN LIESHOUT³, SUZANNE POLINDER¹

¹Erasmus MC, University Medical Center Rotterdam, Department of Public Health, Rotterdam, PO Box 2040, 3000 CA Rotterdam, The Netherlands

²Department of Surgery, Northwest Clinics Alkmaar, PO Box 501, 1800 AM Alkmaar, The Netherlands

³Trauma Research Unit Department of Surgery, Erasmus MC, University Medical Center Rotterdam, PO Box 2040, 3000 CA Rotterdam, The Netherlands

⁴Geriatrics Section, Department of Internal Medicine, Amsterdam UMC location AMC, PO Box 22660, 1100 DD Amsterdam, The Netherlands

⁵Department of Public Health and Primary Care, Leiden University Medical Center, Hippocratespad 21, PO Box 9600, 2300 RC Leiden, The Netherlands

⁶Department of Orthopaedic Surgery, Elisabeth-TweeSteden Ziekenhuis, PO Box 90151, 5000 LC Tilburg, The Netherlands

⁷Department of Surgery, Rode Kruis Ziekenhuis, PO Box 1074, 1940 EB Beverwijk, The Netherlands

⁸Department of Orthopaedic Surgery, Dijklander Ziekenhuis, PO Box 600, 1620 AR Hoom, The Netherlands

⁹Department Trauma TopCare, Elisabeth-TweeSteden Ziekenhuis, PO Box 90151, 5000 LC Tilburg, The Netherlands

¹⁰Department of Orthopaedic Surgery, Isala, PO Box 10400, 8000 GK Zwolle, The Netherlands

Address correspondence to: Inge Spronk. Tel: +31 107038460. Email: i.spronk@erasmusmc.nl

Abstract

Introduction: Proximal femoral fractures are common in frail institutionalised older patients. No convincing evidence exists regarding the optimal treatment strategy for those with a limited pre-fracture life expectancy, underpinning the importance of shared decision-making (SDM). This study investigated healthcare providers' barriers to and facilitators of the implementation of SDM.

Methods: Dutch healthcare providers completed an adapted version of the Measurement Instrument for Determinants of Innovations questionnaire to identify barriers and facilitators. If $\geq 20\%$ of participants responded with 'totally disagree/disagree', items were considered barriers and, if $\geq 80\%$ responded with 'agree/totally agree', items were considered facilitators.

Results: A total of 271 healthcare providers participated. Five barriers and 23 facilitators were identified. Barriers included the time required to both prepare for and hold SDM conversations, in addition to the reflective period required to allow patients/relatives to make their final decision, and the number of parties required to ensure optimal SDM. Facilitators were related to patients' values, wishes and satisfaction, the importance of SDM for patients/relatives and the fact that SDM is not considered complex by healthcare providers, is considered to be part of routine care and is believed to be associated with positive patient outcomes.

Conclusion: Awareness of identified facilitators and barriers is an important step in expanding the use of SDM. Implementation strategies should be aimed at managing time constraints. High-quality evidence on outcomes of non-operative and operative management can enhance implementation of SDM to address current concerns around the outcomes.

Keywords: hip fracture, non-operative, shared decision-making, barriers, facilitators, older people

Key Points

- Shared decision-making (SDM) for (non-)operative management of hip fractures in frail institutionalised patients is challenging.
- SDM for operative or non-operative management in frail older patients with a hip fracture is underutilised.
- The main barriers identified to SDM in frail older patients with a hip fracture were time constraints, and the number of parties that have to be involved.
- Addressing concerns regarding outcomes of frail older patients with a hip fracture can enhance further implementation of SDM.

Introduction

Proximal femoral fractures are one of the most common fractures in older persons [1]. These fractures are devastating for the prognosis and (health-related) quality of life [(HR)QoL] of frail patients [2–4]. The standard treatment is operative management (OM) which allows early mobilization, is effective in pain relief and prevents complications of immobilisation. However, surgery does not always prevent frail older patients from developing complications, and rehabilitation is often unsuccessful (~33%) [4–6]. In addition, hospital admission for surgery can provoke cognitive impairment or delirium [6, 7].

There is an ongoing debate on whether surgery is the best treatment for these patients [6, 8]. A palliative care-focused approach may be appropriate for some. Non-operative management (NOM), focusing on comfort and pain control, could be a valid option for some patients. Due to the lack of evidence, there are no current specific treatment guidelines regarding NOM for proximal femoral fractures [9].

Surgery with rehabilitation goals is the mainstay of care [9, 10]. However, goals of care of the frailest patients often do not concern rehabilitation, but primarily focus on (HR)QoL and comfort [11, 12]. This underpins the importance of openly discussing the advantages and disadvantages of NOM and OM to reach a shared care decision.

In shared decision-making (SDM), patients and healthcare providers openly discuss treatment options, while patients are assisted in expressing their preferences and values, and become actively involved [13, 14]. SDM is an important element of high-quality care [15], as patients report feeling better informed, with better appreciation of potential risks. They also report feeling clearer about their own beliefs, and value a more active role in the decision-making process [16, 17]. Also, SDM is associated with higher satisfaction with the decision made and improved QoL [18–20].

To successfully implement SDM in patients with a proximal femoral fracture, an implementation strategy is required [21]. The first step is to determine barriers and facilitators that may influence implementation of SDM, including an understanding of its principles, attitude and skills specific to SDM, and available time and resources [22]. This ensures that the implementation strategy deals with important barriers and facilitators, and is feasible and tailored to the context [23, 24].

This study aims at gaining insights into the application of SDM for the treatment of frail institutionalised older patients with a proximal femoral fracture, and at identifying healthcare providers' perceived barriers and facilitators.

Methods

Study design

This cross-sectional questionnaire study followed the 'Strengthening the Reporting of Observational studies in Epidemiology' (STROBE) guidelines. The online questionnaire was programmed in LimeSurvey (Version 2.06lts) [25] and widely disseminated via the project team and FRAIL-HIP study group [26] to an extensive network of healthcare providers working in the departments of trauma surgery, orthopaedic surgery and in-hospital geriatrics, and to older people's care physicians. Within Dutch healthcare, dedicated healthcare providers, named older people's care physicians, in nursing homes are responsible for the care of frail older institutionalised patients. The SDM conversation was explored at the time of injury, not in the setting of advance care planning. Data were collected between 8 December 2020 and 8 March 2021.

Questionnaire

The evidence-based Measurement Instrument for Determinants of Innovations (MIDI) [22] questionnaire was used to

identify barriers and facilitators to implementation of SDM. This 29-item instrument captures common determinants in healthcare and guides design of implementation strategies. Following questionnaire regulations, items were adapted to our study context [22]. As SDM is not a new approach, not all MIDI items were relevant (Table 2). Fourteen MIDI items were included, as well as two items of the Barriers and Facilitators Assessment Instrument (BFAI) [27] and 11 items that were developed after consultation with healthcare providers (Table 2). Each item has five answer options, ranging from 1 ('totally disagree') to 5 ('totally agree'). One open-ended question was added to uncover other barriers.

Five questions were included on patient communication, expected outcomes, reasons for NOM, preferred level of feedback on SDM and on patient outcomes.

Finally, healthcare providers' characteristics, setting characteristics, application of SDM and the healthcare providers' role in the SDM process were explored.

The questionnaire was adapted and evaluated rigorously by the FRAIL-HIP study team until consensus was reached [26]. The pre-final version was pilot tested by six healthcare providers. Their comments and suggestions were used to finalise the questionnaire.

Statistical analyses

Data were analysed using SPSS version 25.0 (SPSS, Chicago, IL, USA). Continuous data were reported as median (quartiles) due to non-normal distribution. Categorical data were reported as numbers (percentage). In accordance with earlier studies [28, 29], we considered positively worded statements to which $\geq 20\%$ of the healthcare providers responded 'totally disagree' as barriers. Positively worded statements to which $\geq 80\%$ responded 'totally agree' were considered facilitators. For negatively worded statements, if $\geq 80\%$ of participants disagreed, statements were considered facilitators, whereas if $\geq 20\%$ agreed, statements were considered barriers.

Mann-Whitney U-test was used to test for statistical differences in barriers and facilitators between subgroups of healthcare providers. Subgroups studied were: (i) (orthopaedic) trauma surgeons versus residents; (ii) trauma/orthopaedic department versus in-hospital geriatric department; and (iii) hospital versus nursing home setting.

Results

Participants

A total of 271 healthcare professionals participated (Table 1). All invited disciplines were represented, with a small representation from the emergency department ($n=6$). Most healthcare providers were 26–35 years old (38%) and female (55%). Most healthcare professionals were clinicians (63%), and the median duration of professional work experience in their current occupation was 7 years ($P_{25}-P_{75}$ 3–15). The majority of the respondents from the (trauma) surgery and

orthopaedics departments were males, whereas the majority of the respondents from the other departments were females. Over half of the healthcare providers (57%) worked in a FRAIL-HIP study site.

Application of SDM

Many respondents (97%) had a role in the SDM process (Table 1). Most frequently the SDM conversation was led by a representative of the (trauma) surgery department (41%), including always/often members of a multidisciplinary team (41%). Respondents always (21%) or often (35%) informed patients of the option for NOM, with only 13% reporting rarely and 1% reporting never discussing NOM.

About half of the in-hospital healthcare providers were aware of their patients' outcomes after SDM on NOM or OM (46–55%), whereas most older people's care physicians (83%) were aware of their patients' outcomes. The majority of participants would like to receive more feedback on patients' well-being after SDM (67%), and on how patients felt about the SDM conversation and the decision made (62%). The most important reasons not to perform surgery were patients' preferences, patients' QoL and comorbidities (Figure 1). Patients' limited mobility was less often considered important. Other reasons reported by at least five professionals were: limited life expectancy (19%); families' wish (6%); risk of delirium/cognitive problems (4%); or complexity of the fracture or surgery (3%).

Barriers and facilitators of implementing SDM

Overall, healthcare providers had a positive attitude towards implementation of SDM (Table 2). Twenty-three facilitators (highlighted in blue in Table 2) and five barriers (highlighted in red in Table 2) were identified.

SDM as a concept

Seven facilitators and three barriers were identified; most healthcare providers (94%) welcomed the opportunity to consider patients' values; 93% considered SDM to be part of routine care; 92% found assessing the eligibility of patients for SDM was straightforward and 86% understood their requirements; 83% reported that SDM was relevant for most patients; and 80% felt able to gain insights into patients' and their relatives' wishes and expectations during an SDM conversation (80%). Barriers included the efforts to conduct the SDM with a multidisciplinary team (65%), the time required to conduct the SDM conversation (36%) and the reflective period for patients and their relatives to make a decision (21%).

User experiences with SDM

With respect to user experiences, seven facilitators and one barrier were found. The most important facilitator was the likelihood of a positive patient outcome; almost all healthcare providers found it important to achieve satisfaction of the patient and his/her relatives with the decision made

Table 1. Study characteristics

	Total (n = 271)	Hospital department (n = 166)			Emergency medicine (n = 6)	Nursing home (n = 105)
		Surgery (n = 97)		Geriatrics (n = 63)		
		Trauma (n = 68)	Orthopaedics (n = 29)			
Demographics						
Sex (male)	122 (45.0%)	56 (82.4%)	26 (89.7%)	10 (15.9%)	3 (50.0%)	27 (25.7%)
Age (years)						
18–35	102 (37.6%)	23 (33.8%)	14 (48.3%)	25 (38.1%)	3 (50.0%)	37 (35.2%)
36–45	60 (22.1%)	23 (33.8%)	6 (20.7%)	19 (30.2%)	–	12 (11.4%)
46–55	68 (25.1%)	20 (29.4%)	8 (27.6%)	9 (14.3%)	3 (50.0%)	28 (26.7%)
>55	41 (15.1%)	2 (2.9%)	1 (3.4%)	10 (15.9%)	–	28 (26.7%)
Occupation						
Clinician	171 (63.1%)	42 (61.8%)	17 (58.6%)	41 (65.1%)	4 (66.7%)	67 (63.8%)
Resident	71 (26.2%)	23 (33.8%)	12 (41.4%)	13 (20.6%)	2 (33.3%)	21 (20.0%)
Physician assistant	29 (10.7%)	3 (4.4%)	–	9 (14.3%)	–	17 (16.2%)
Experience (years), median (P₂₅–P₇₅)	7.0 (3.0–15.0)	6.0 (3.0–13.8)	8.0 (4.5–12.0)	7.0 (4.0–14.0)	6.0 (0.8–19.3)	8.0 (3.5–20.0)
Shared decision-making (SDM)						
Role in SDM						
Leading conversation	167 (61.6%)	49 (72.1%)	15 (51.7%)	19 (30.2%)	2 (33.3%)	82 (78.1%)
Advising attending physician from own speciality	72 (26.6%)	5 (7.4%)	5 (17.2%)	40 (63.5%)	3 (50.0%)	19 (18.1%)
Supervising and attending the SDM conversation	25 (9.2%)	14 (20.6%)	8 (27.6%)	1 (1.6%)	–	2 (1.9%)
Not involved	7 (2.6%)	–	1 (3.4%)	3 (4.8%)	1 (16.7%)	2 (1.9%)
Specialty leading SDM conversation						
Trauma surgery	110 (40.6%)	62 (91.2%)	1 (3.4%)	32 (50.8%)	6 (100%)	9 (8.6%)
Orthopaedics	39 (14.4%)	–	18 (62.1%)	17 (27.0%)	–	4 (3.8%)
In-hospital clinical geriatrics	29 (10.7%)	5 (7.4%)	6 (20.7%)	14 (22.2%)	–	4 (3.8%)
Emergency department	3 (1.1%)	1 (1.5%)	2 (6.9%)	–	–	–
Elderly care physician	90 (33.2%)	–	2 (6.9%)	–	–	88 (83.8%)
Multidisciplinary involvement in SDM						
Always	11 (4.1%)	2 (2.9%)	2 (6.9%)	–	1 (16.7%)	6 (5.7%)
Often	99 (36.5%)	28 (41.2%)	16 (55.2%)	20 (31.7%)	2 (33.3%)	33 (31.4%)
Sometimes	109 (40.2%)	25 (36.8%)	8 (27.6%)	35 (55.6%)	1 (16.7%)	40 (38.1%)
Rarely	43 (15.9%)	11 (16.2%)	2 (6.9%)	7 (11.1%)	1 (16.7%)	22 (21.0%)
Never	9 (3.3%)	2 (2.9%)	1 (3.4%)	1 (1.6%)	1 (16.7%)	4 (3.8%)

(96%). Other facilitators included the fact that conducting SDM is part of a physician's function (93%), that they have support of colleagues (89%), the experience that patients (87%) and relatives (87%) are usually satisfied with SDM and the decision made, and the experience that patients are usually able to engage in SDM (82%). The identified barrier was the lack of time available to organize a multidisciplinary consultation prior to an SDM conversation (34%).

User advantages and disadvantages regarding SDM

Nine facilitators and one barrier were identified related to user advantages and disadvantages regarding SDM. Facilitators were mainly related to the expectation of positive outcomes. Conducting an SDM conversation leads to more satisfaction about the decision made with the relatives (93%),

to the best possible patients' QoL (91%), to patients' satisfaction about the decision made (91%), to the best possible treatment in view of a patient's life expectancy (91%) and to healthcare professionals' satisfaction with the decision made (89%). The potential that SDM leads to a palliative strategy distressing patients and/or their relatives was not considered a barrier by most respondents (89%). However, the possibility of increased pain by NOM was found to be a barrier (24%).

Other potential barriers

Sixty-six healthcare providers (30%) indicated 10 other potential barriers. Barriers mentioned by at least five healthcare providers included alternating responsible healthcare providers (n = 15), perceived lack of evidence for SDM

Barriers and facilitators of shared decision-making for treatment of femoral fractures

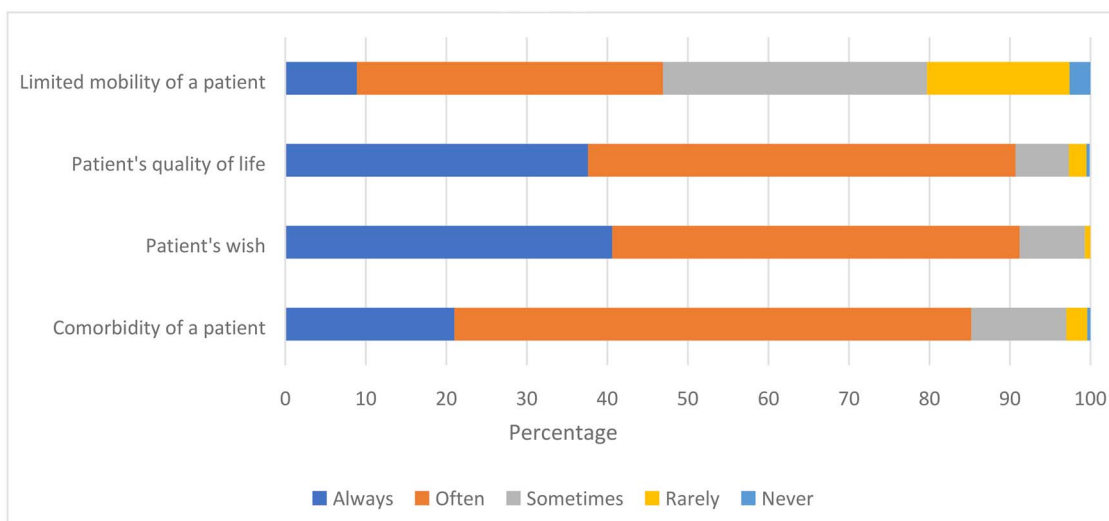


Figure 1. Healthcare providers' reasons not to perform surgery for proximal femoral fracture in frail institutionalised older patients.

($n = 13$), the concern that it is difficult to facilitate SDM outside normal working hours ($n = 8$), the difficulty of conducting SDM with an incapacitated patient without family/friends to consult ($n = 7$), the difficulty in managing potentially divergent opinions of the patient and family members ($n = 7$) and lack of early input from an older people's care physician ($n = 6$).

Barriers and facilitators in subgroups

Trauma/orthopaedic medical specialists versus residents

Generally, these subgroups reported the same barriers and facilitators, though most facilitators were stronger in medical specialists (Table 3). Three significant differences were found. Awareness (93% versus 74%; $P = 0.008$) and cooperation with patients (90% versus 68%; $P = 0.011$) were facilitators for medical specialists but not for residents. Also, the opportunity to make their own consideration when treating patients was statistically different between the subgroups ($P = 0.030$) but was a facilitator in both groups (97% versus 84%).

Trauma/orthopaedic versus clinical geriatrics department

Generally, facilitators were stronger in the geriatrics department, and 10 statistically significant differences were found (Table 3). Suitability of SDM (95% versus 77%; $P = 0.003$); SDM leading to improved physician's satisfaction about the decision (91% versus 77%; $P = 0.032$); insights into the patient's and relatives wishes/expectations (89% versus 76%; $P = 0.044$); number of parties involved (89% versus 66%; $P = 0.001$); and having a multidisciplinary consultation prior to an SDM conversation (86% versus 57%; $P < 0.001$) were facilitators for the geriatric but not the trauma/orthopaedic department.

Compatibility of SDM with current working methods (98% versus 87%; $P = 0.011$); provision of better personalised care (98% versus 88%; $P = 0.015$); best possible patients' QoL ($P = 0.035$); and NOM possibly leading to a palliative strategy (97% versus 87%; $P = 0.034$) were facilitators for both departments, though stronger for the geriatric department.

The possibility of increased pain due to the choice of NOM was perceived as a barrier by the trauma/orthopaedic but not the geriatrics department (26% versus 18%; $P = 0.025$). Conducting an SDM conversation with a multidisciplinary team was a stronger barrier for the trauma/orthopaedic department (69% versus 49%; $P = 0.006$).

Hospital versus nursing home setting

Some facilitators and barriers differed between the hospital and nursing home setting (Table 3). The number of parties involved in SDM was a facilitator in the nursing home but not in the hospital setting (86% versus 73%; $P = 0.016$), whereas conducting SDM at the emergency unit (30% versus 13%; $P < 0.001$) and the reflective period for patients and relatives to make a final decision were barriers for nursing home caregivers but not hospital caregivers (22% versus 19%; $P = 0.018$). On the other hand, colleagues who are expected but not used to conduct SDM conversations were found to be a barrier in the hospital but not the nursing home setting (21% versus 11%; $P = 0.011$). The belief that SDM always takes more time than expected was a barrier in both settings (44% versus 22%; $P < 0.001$).

Discussion

This study evaluated healthcare providers' barriers to and facilitators of the implementation of SDM for the treatment decision on NOM and OM of proximal femoral fractures

Table 2. Barriers and facilitators influencing the implementation of shared decision-making (SDM) for the treatment decision for proximal femoral fracture in frail institutionalised older patients ($n = 271$)

No.	Origin item	Questionnaire item	Disagree/ totally disagree (%)	Neutral (%)	Agree/ totally agree (%)
Concept and intervention: SDM for proximal femoral fracture in frail institutionalized older patients					
1	MIDI 7	Relevance for patient: SDM is suitable for frail institutionalized older patients with a proximal femoral fracture (+)	5.9	10.7	83.4
2	MIDI 4	Complexity: assessing which patients are eligible for SDM for the treatment decision for proximal femoral fractures in frail institutionalized older patients is not too complex for me (+)	2.2	6.3	91.5
3	MIDI 3	Completeness: I have all the information and support needed to have an SDM conversation (+)	16.2	18.1	65.6
4	MIDI 5	Compatibility: Conducting an SDM conversation is compatible with my working methods (+)	2.6	4.1	93.4
5	BFAI 1	SDM provides me with the opportunity to make my own consideration (+)	1.1	5.2	93.7
6	BFAI 2	SDM provides me with the opportunity to include the values of the patient (+)	1.1	4.4	94.4
7	MIDI 17	Knowledge: I have enough knowledge to conduct an SDM conversation with patients from this patient group (+)	7.0	15.5	77.7
8	MIDI 18	Awareness: I am aware of what is expected of me in conducting an SDM conversation (+)	4.8	9.2	86.0
9		I find it difficult to gain insights into the patient's and their relatives wishes and expectations during an SDM conversation (-)	80.4	13.7	5.9
10		The number of parties that have to attend the conversation prevents me from conducting an SDM conversation (-)	77.9	15.9	6.3
11		I feel that it is not always necessary to conduct an SDM conversation with a multidisciplinary team (-)	22.9	12.5	64.6
12		I think that an SDM conversation can be held in a calm manner at the emergency unit (+)	19.2	22.1	58.7
13		SDM always takes more time than I expected (-)	35.1	29.5	35.5
14		I think it is desirable to give patients and their relatives at least a few hours to think before making the final decision (+)	21.0	27.3	51.6
User: Experiences with SDM for the treatment decision for proximal femoral fracture in frail institutionalized older patients					
15	MIDI 9a	Outcome: I find it important to achieve satisfaction of the patient and/or his/her relative with the decision made (+)	1.1	3.0	95.9
16	MIDI 10	Professional obligation: Conducting SDM conversation is part of my role (+)	2.2	5.2	92.6
17	MIDI 11a	Satisfaction: Patients are usually satisfied with the SDM conversation and the decision made (+)	0	13.3	86.7
18	MIDI 11b	Satisfaction: Relatives are usually satisfied with the SDM conversation and the decision made (+)	0	12.9	87.1
19	MIDI 12a	Cooperation: Patients are usually able to have an SDM conversation and make a decision (+)	3.3	14.4	82.1
20	MIDI 12b	Cooperation: Relatives are usually able to have an SDM conversation and make a decision (+)	3.3	21.8	75.0
21	MIDI 13	Support: I can count on adequate assistance from colleagues if needed (+)	0.7	10.7	88.6
22	MIDI 14	Descriptive norm: all colleagues that are expected to conduct SDM conversation actually have these conversations (+)	17.0	25.1	58.0
23	MIDI 16	Self-efficacy: I am able to conduct an SDM conversation (+)	0.7	3.3	95.9
24		A multidisciplinary consultation prior to an SDM conversation contributes to a successful SDM conversation (+)	10.0	23.6	66.4
25		Within my organization there is enough available time to conduct a multidisciplinary consultation prior to an SDM conversation (+)	33.6	31.0	35.4
User: Advantages and disadvantages of SDM for the treatment decision for proximal femoral fracture in frail institutionalized older patients					
26	MIDI 8a	Personal benefits: conducting an SDM conversation improves my satisfaction about the decision (+)	0.4	14.4	85.2
27	MIDI 8b	Personal benefits: conducting an SDM conversation supports me to provide better personalized care (+)	0.4	7.0	92.7
28	MIDI 8c	Personal benefits: the time needed for an SDM conversation impedes me to conduct SDM (-)	62.0	25.5	18.8
29	MIDI 8d	Personal benefits: I find it difficult that I have to provide patients/relatives a reflection period after the SDM conversation before making a final decision (-)	56.1	28.4	15.5
30	MIDI 9b	Outcomes expectations: conducting an SDM conversation leads to the best possible quality of life (+)	1.1	7.7	91.2
31	MIDI 9c	Outcomes expectations: conducting an SDM conversation leads to less surgeries in this patient group (+)	10.0	33.2	56.8
32	MIDI 9d	Outcomes expectations: conducting an SDM conversation leads to less pain for patients (+)	24.0	46.1	29.9
33	MIDI 9e	Outcomes expectations: conducting an SDM conversation leads to the best possible treatment in view of the patient's life expectancy (+)	2.2	7.0	90.8
34	MIDI 9f	Outcomes expectations: conducting an SDM conversation leads to patient's satisfaction about the decision made (+)	0.4	8.5	91.1
35	MIDI 9g	Outcomes expectations: conducting an SDM conversation leads to relatives' satisfaction about the decision made (+)	0	7.0	93.0
36	MIDI 9h	Outcomes expectations: conducting an SDM conversation leads to satisfaction for me and my colleagues about the decision made (+)	0.7	10.0	89.3
37	MIDI 9i	Outcomes expectations: conducting an SDM conversation leads to decreased healthcare use and associated costs (+)	8.1	32.8	59.0
38		My own opinion about surgical versus non-surgical policy impedes me in conducting SDM (-)	79.0	15.5	5.5
39		The fact that the nonoperative management results in a redistribution of costs for hospitals and nursing homes impedes me in conducting SDM (-)	91.9	5.9	2.2
40		The fact that nonoperative management may lead to a palliative strategy and can shock patients and/or their relatives impedes me in conducting SDM (-)	88.9	4.8	6.3

Note: (+) indicates positive statement; (-) indicates negative statement. Data are shown as percentages. Highlighted in red are barriers; highlighted in blue are facilitators.

Table 3. Comparison of barriers and facilitators between different subgroups of healthcare providers

No.	Questionnaire item	Trauma/orthopaedic department				Department				Setting			
		Clinicians (n = 59)		Residents/physician assistants (n = 38)		Trauma/orthopaedics (n = 97)		In-hospital clinical geriatrics (n = 63)		Hospital (n = 166)		Nursing home (n = 105)	
		(totally disagree (%)	(totally agree (%)	(totally disagree (%)	(totally agree (%)	(totally disagree (%)	(totally agree (%)	(totally disagree (%)	(totally agree (%)	(totally disagree (%)	(totally agree (%)	(totally disagree (%)	(totally agree (%)
1	Relevance for patient: SDM is suitable for frail institutionalised older patients with a proximal femoral fracture (+)	8.5	74.6	2.6	81.6	6.2	77.3	1.6	95.2	4.2	83.7	8.6	82.9
2	Complexity: assessing which patients are eligible for SDM for the treatment decision for proximal femoral fractures in frail institutionalised older patients is not too complex for me (+)	3.4	91.5	2.6	89.5	3.1	90.7	1.6	96.8	2.4	92.2	1.9	90.5
3	Completeness: I have all the information and support needed to have an SDM conversation (+)	10.2	72.9	21.1	63.2	14.4	69.1	17.5	61.9	16.9	64.5	15.2	67.6
4	Compatibility: conducting an SDM conversation is compatible with my working methods (+)	1.7	89.8	7.9	81.6	4.1	86.6	1.6	98.4	3.6	91.0	1.0	97.1
5	SDM provides me with the opportunity to make my own consideration (+)	0	96.6	2.6	84.2	1.0	91.8	1.6	98.4	1.2	94.6	1.0	92.4
6	SDM provides me with the opportunity to include the values of the patient (+)	1.7	94.9	0	89.5	1.0	92.8	1.6	96.8	1.2	94.6	1.0	94.3
7	Knowledge: I have enough knowledge to conduct an SDM conversation with patients from this patient group (+)	6.8	81.4	10.5	65.8	8.2	75.3	7.9	76.2	8.4	74.1	4.8	82.9
8	Awareness: I am aware of what is expected of me in conducting an SDM conversation (+)	1.7	93.2	7.9	73.7	4.1	85.6	6.3	88.9	5.4	85.5	3.8	86.7
9	I find it difficult to gain insights into the patients' and their relatives' wishes and expectations during an SDM conversation (-)	72.9	6.8	81.6	2.6	76.3	5.2	88.9	1.6	79.5	4.8	81.9	7.6
10	The number of parties that have to attend the conversation prevents me from conducting an SDM conversation (-)	69.5	5.1	60.5	15.8	66.0	9.3	88.9	3.2	72.9	7.2	85.7	4.8
11	I feel that it is not always necessary to conduct an SDM conversation with a multidisciplinary team (-)	18.6	72.9	21.1	63.2	19.6	69.1	39.7	49.2	26.5	61.4	17.1	69.5
12	I think that an SDM conversation can be held in a calm manner at the emergency unit (+)	6.8	81.4	13.2	65.8	9.3	75.3	14.3	71.4	12.7	72.9	29.5	36.2
13	SDM always takes more time than I expected (-)	20.3	37.3	15.8	57.9	18.6	45.4	33.3	41.3	24.1	44.0	52.4	21.9
14	I think it is desirable to give patients and their relatives at least a few hours to think before making the final decision (+)	20.3	62.7	23.7	65.8	21.6	63.9	14.3	50.8	18.7	57.8	24.8	41.9
15	User: experiences with SDM for the treatment decision for proximal femoral fracture in frail institutionalised older patients												
	Outcome: I find it important to achieve satisfaction for the patient and/or his/her relative with the decision made (+)	1.7	96.6	2.6	92.1	2.1	94.8	1.6	95.2	1.8	95.2	0	97.1
16	Professional obligation: conducting an SDM conversation is part of my role (+)	1.7	89.8	5.3	89.5	3.1	89.7	1.6	93.7	3.6	90.4	0	96.2
17	Satisfaction: patients are usually satisfied with the SDM conversation and the decision made (+)	0	88.1	0	84.2	0	86.6	0	88.9	0	86.1	0	87.6
18	Satisfaction: relatives are usually satisfied with the SDM conversation and the decision made (+)	0	84.7	0	78.9	0	82.5	0	90.5	0	84.3	0	91.4

Continued

Table 3. Continued.

No.	Questionnaire item	Trauma/orthopaedic department						Department						Setting				
		Clinicians (n = 59)			Residents/physician assistants (n = 38)			Trauma/orthopaedics (n = 97)			In-hospital clinical geriatrics (n = 63)			Hospital (n = 166)		Nursing home (n = 105)		
		(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	(totaly disagree (%)	(totaly agree (%)	
19	Cooperation: patients are usually able to have an SDM conversation and make a decision (+)	3.4	89.8	2.6	68.4	3.1	81.4	1.6	88.9	2.4	83.7	4.8	80.0	2.4	83.7	4.8	80.0	
20	Cooperation: relatives are usually able to have an SDM conversation and make a decision (+)	3.4	66.1	2.6	68.4	3.1	67.0	4.8	81.0	3.6	71.1	2.9	81.0	3.6	71.1	2.9	81.0	
21	Support: I can count on adequate assistance from colleagues if needed (+)	1.7	86.4	0	86.8	1.0	86.6	1.6	93.7	1.2	89.2	0	87.6	1.2	89.2	0	87.6	
22	Descriptive norm: all colleagues that are expected to conduct an SDM conversation actually have these conversations (+)	16.9	59.3	23.7	44.7	19.6	53.6	20.6	54.0	21.1	52.4	10.5	66.7	21.1	52.4	10.5	66.7	
23	Self-efficacy: I am able to conduct an SDM conversation (+)	0	100	0	94.7	0	97.9	0	96.8	0	67.5	11.4	64.8	0	67.5	11.4	64.8	
24	A multidisciplinary consultation prior to an SDM conversation contributes to a successful SDM conversation (+)	15.3	54.2	10.5	60.5	13.4	56.7	1.6	85.7	0.6	95.8	1.0	96.2	0.6	95.8	1.0	96.2	
25	Within my organisation there is enough available time to conduct a multidisciplinary consultation prior to an SDM conversation (+)	22.0	35.6	42.1	28.9	29.9	33.0	44.4	36.5	35.5	33.7	30.5	38.1	35.5	33.7	30.5	38.1	
User advantages and disadvantages of SDM for the treatment decision for proximal femoral fracture in frail institutionalised older patients																		
26	Personal benefits: conducting an SDM conversation improves my satisfaction about the decision (+)	79.7	2.6	73.7	1.0	77.3	0	90.5	0.6	82.5	0	89.5	0	82.5	0.6	82.5	0	89.5
27	Personal benefits: conducting an SDM conversation supports me to provide better personalised care (+)	88.1	0	86.8	1.0	87.6	0	98.4	0.6	91.6	0	94.3	0	91.6	0.6	91.6	0	94.3
28	Personal benefits: the time needed for an SDM conversation impedes me in conducting an SDM (-)	10.2	44.7	28.9	45.4	17.5	58.7	15.9	49.4	18.1	49.4	18.1	3.8	18.1	49.4	18.1	3.8	18.1
29	Personal benefits: I find it difficult that I have to provide patients/relatives with a reflection period after the SDM conversation before making a final decision (-)	55.9	20.3	55.3	21.1	55.7	20.6	66.7	7.9	59.0	16.3	51.4	14.3	59.0	16.3	51.4	14.3	59.0
30	Outcomes expectations: conducting an SDM conversation leads to the best possible quality of life (+)	1.7	86.4	2.6	81.6	2.1	84.5	0	95.2	1.2	89.2	1.0	94.3	1.2	89.2	1.0	94.3	1.2
31	Outcomes expectations: conducting an SDM conversation leads to less surgery in this patient group (+)	5.1	66.1	5.3	65.8	5.2	66.0	11.1	44.4	7.2	57.8	14.3	55.2	7.2	57.8	14.3	55.2	7.2
32	Outcomes expectations: conducting an SDM conversation leads to less pain for patients (+)	22.0	22.0	36.1	15.8	25.8	19.6	17.5	36.5	22.9	26.5	25.7	35.2	22.9	26.5	25.7	35.2	22.9
33	Outcomes expectations: conducting an SDM conversation leads to the best possible treatment in view of the patient's life expectancy (+)	1.7	93.2	2.6	89.5	2.1	91.8	3.2	90.5	2.4	91.0	1.9	90.5	2.4	91.0	1.9	90.5	2.4
34	Outcomes expectations: conducting an SDM conversation leads to patients' satisfaction about the decision made (+)	0	94.9	2.6	84.2	1.0	90.7	0	98.4	0.6	92.8	0	88.6	0.6	92.8	0	88.6	0.6
35	Outcomes expectations: conducting an SDM conversation leads to relatives' satisfaction about the decision made (+)	0	96.6	0	86.8	0	92.8	0	98.4	0	94.0	0	91.4	0	94.0	0	91.4	0
36	Outcomes expectations: conducting an SDM conversation leads to satisfaction for me and my colleagues about the decision made (+)	0	89.8	2.6	84.2	1.0	87.6	0	95.2	0.6	91.0	1.0	86.7	0.6	91.0	1.0	86.7	0.6
37	Outcomes expectations: conducting an SDM conversation leads to decreased healthcare use and associated costs (+)	5.1	61.0	0	63.2	6.2	61.9	4.8	65.1	5.4	63.9	12.4	51.4	5.4	63.9	12.4	51.4	5.4
38	My own opinion about surgical versus non-surgical policy impedes me in conducting an SDM (-)	76.3	8.5	76.3	7.9	76.3	8.2	77.8	6.3	75.9	7.8	83.8	1.9	75.9	7.8	83.8	1.9	75.9
39	The fact that the non-operative management results in a redistribution of costs for hospitals and nursing homes impedes me in conducting an SDM (-)	84.7	5.1	94.7	2.6	88.7	4.1	95.2	0	90.4	2.4	94.3	1.9	90.4	2.4	94.3	1.9	90.4
40	The fact that non-operative management may lead to a palliative strategy and can shock patients and/or their relatives impedes me in conducting an SDM (-)	83.1	10.2	92.1	5.3	86.6	8.2	96.8	0	89.2	6.0	88.6	6.7	89.2	6.0	88.6	6.7	89.2

Note: (+) indicates a positive statement; (-) indicates a negative statement. Bold figures indicate statistically significant differences between subgroups.

in frail institutionalised older patients. Facilitators were generally related to patients' values, wishes and satisfaction with SDM, the importance of SDM for patients/relatives, the fact that SDM is not considered complex by healthcare providers, is considered part of routine care and that it is believed to be associated with positive patients' outcomes. Barriers included the time required to hold an SDM conversation, the reflective period required to allow patients/relatives to make their final decision, the number of parties required to ensure optimal SDM and the possibility of increased pain by NOM.

No studies have previously been published on barriers and facilitators of SDM on NOM or OM of frail older patients who sustain a proximal femoral fracture. Prior studies on healthcare providers' barriers and facilitators of SDM in other medical conditions also found that time constraints were the main barrier for SDM [30–33], whereas facilitators were the belief that SDM positively impacts patients' outcome and the clinical process [30]. Previous research on barriers reported by patients showed that the uncertainty of lack of consensus about treatment decisions, concerns regarding adverse effects and poor healthcare provider communication were the main barriers [32]. Uncertainty is an important topic in the treatment of proximal femoral fractures, especially with regards to NOM in patients with a limited life expectancy [10]. This was also reflected in our study, as many healthcare providers indicated they would like to receive more feedback on patients' well-being after SDM, how patients felt about the SDM conversation and the satisfaction with the decision made, which indirectly indicates a lack of transmutual feedback.

Working experience, department and setting were all found to influence identified facilitators and barriers. Medical specialists reported stronger facilitators compared with residents, probably due to their difference in working experience. Facilitators were stronger in the geriatrics department than in the trauma/orthopaedic department, potentially because geriatricians are more used to engaging in SDM end-of-life discussions and might have more time available per patient compared with surgical disciplines.

The SDM process and the degree of assessment may impact the (treatment) decision made [34]. It was shown that the implementation of a comprehensive geriatric assessment (CGA) and SDM raised the rate of NOM from 2.7% to 9.1% [34], indicating the importance of SDM and openly discussing treatment options [11]. There is growing evidence that routinely engaging in end-of-life discussions with frail 'high-risk' patients and their proxies about the option to forego life-sustaining therapies promotes patients' and families' values, improves the quality of dying and reduces relatives' distress and bereavement [35, 36].

To further improve the uptake of SDM, implementation strategies should mainly address the time consumption aspect, as well as other identified facilitators and barriers [21, 23, 24]. The implementation strategy should be tailored to the specific context, to specific healthcare providers and their level of experience, and include the local circumstances,

care pathways and culture in order to be feasible [37–39]. Identified barriers, especially time constraints and concerns around the outcomes, should be addressed. Although proximal femoral fractures are acute events, a decision on NOM or OM does not have to be made hastily [40]. Waiting time for surgery within 24–48 h is not necessarily associated with worse outcomes, as long as the patients' condition is optimized for surgery [41–43]. Therefore, taking time to organize a multidisciplinary meeting or a reflective period after the initial conversation, instead of rushed decision-making, can only be advocated. Also, high-quality evidence of outcomes will enhance the implementation of SDM.

Knowledge of risks and outcomes provides an opportunity to inform not only healthcare providers, but also patients and their relatives, which is especially important for realistic expectation management. Risk stratification tools, such as the Clinical Frailty Scale, can help estimate the risk of mortality, thereby supporting the SDM process [44]. Together with CGA and advance care planning (ACP), SDM support tools [45–48] inform patients and their relatives on care and treatment options and support them in discussing these with their healthcare provider [47–49]. CGA, ACP and SDM tools help patients form more stable preferences [50], and make it easier for healthcare providers to undertake SDM [45]. Developing an SDM support tool might thus be valuable to implement SDM for the treatment decision on proximal femoral fracture in frail institutionalised patients.

Strengths and limitations

The large number of participants enabled us to perform subgroup analyses so that implementation strategies can be tailored to specific healthcare providers across the continuum of care. A limitation was the web-based open link form of the survey. By using this method, we were not aware of who received the open link; only who completed the survey. We therefore have no insight into the response rate and whether responders differed from non-responders. Another limitation was that some healthcare providers (57%) also participated in a study on SDM and outcomes of frail institutionalised patients with a proximal femoral fracture [51]. Although results of this study were not available at the time of conducting this survey, this might influence the potential barriers and facilitators as compared with non-participating hospitals, as participating centres may already practise SDM more extensively for this specific group of patients. The influence of financial factors was not explored, as by law it is mandatory for residents in the Netherlands to be insured, which covers all related healthcare costs. Also prices for proximal femoral surgery are pre-defined. Financial factors might play a role in other healthcare systems.

Conclusion

This study provides important insights into healthcare providers' facilitators and barriers to SDM for the treatment of proximal femoral fractures in frail institutionalised

older patients. The results can be used to enhance further implementation of SDM. Facilitators for implementation are related to patients' values, wishes, satisfaction and perceived relevance of SDM, and the belief that it is associated with positive patient outcomes. In addition, implementation strategies should be aimed at managing time constraints and be targeted towards different healthcare providers and their level of experience. Further quality evidence on outcomes of NOM and OM can enhance further implementation of SDM as they address the current insecurities around the outcomes.

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