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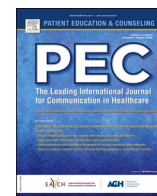
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Shared decision making, patient-centered communication and patient satisfaction – A cross-sectional analysis

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ABSTRACT

Objectives: The integration of shared decision making (SDM) and patient-centered communication (PCC) is needed to actively involve patients in decision making. This study examined the relationship between shared decision making and patient-centered communication.

Methods: In 82 videotaped hospital outpatient consultations by 41 medical specialists from 18 disciplines, we assessed the extent of shared decision making by the OPTION⁵ score and patient-centered communication by the Four Habits Coding Scheme (4HCS), and analyzed the occurrence of a high versus low degree (above or below median) of SDM and/or PCC, and its relation to patient satisfaction scores.

Results: In comparison to earlier studies, we observed comparable 4HCS scores and relatively low OPTION⁵ scores. The correlation between the two was weak ($r = 0.29$, $p = 0.009$). In 38% of consultations, we observed a combination of high SDM and low PCC scores or vice versa. The combination of a high SDM and high PCC, which was observed in 23% of consultations, was associated with significantly higher patient satisfaction scores.

Conclusion: Shared decision making and patient-centered communication are not synonymous and do not always co-exist.

Practice implications: The value of integrated training of shared decision making and patient-centered communication should be further explored.

1. Introduction

Shared decision making (SDM) is increasingly championed as the preferred model for patient care [1–6], as it supports patients' fundamental right of individual autonomy and bodily integrity, by actively involving patients in their healthcare decisions [7–10]. Furthermore it may help to decrease utilization of treatment options without clear benefits, which could avoid patient harm and reduce health care costs [10,11]. Although there is no uniformly accepted definition of SDM [12], it is conceptualized as the process through which patients and health care providers make a decision that suits the patient's medical situation and views and preferences best [13,14]. SDM is commonly described as a way to practice patient-centered care [15–18]. Hoffman and coworkers presented SDM as the essential integration of evidence based medicine and patient-centered communication skills, needed to provide optimal patient care [19]. Barry and Edgman-Levirtan even refer to SDM as “the pinnacle of patient-centered care”, arguing that it

helps clinicians to become better at their work by viewing the health care experience through the patient's eyes and becoming more responsive to their needs [16].

Patient-centered care has been defined by the Institute of Medicine as health care establishing a partnership between physicians and patients to ensure that decisions respect patients' wants, needs, and preferences and that patients are adequately educated and supported to make decisions and participate in their own care [20]. Studies that assess patient-centered communication generally focus on behavior that establishes good communication and connection [7,21,22]. Whilst these definition and operationalization emphasize the need for the establishment of a physician-patient partnership [20], none of the available definitions of SDM takes such partnership building into account [12]. Instead, the main focus in the SDM discourse in the available literature is on technique [7,15,23–26]. Anecdotally, when evaluating thousands of video-recorded medical consultations in SDM studies, Kunneman and colleagues noticed that “pristine shared decision making technique

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could be observed without apparent communication or connection” [23]. This is important as patients consider exactly communication and connection, as part of partnership (building), to be essential for good SDM to occur, because it creates the feeling of safety, respect and trust that patients need to be actively involved in the decision-making process [24,27–33].

Apart from these anecdotal observations, there is a striking paucity of research data on the relationship between SDM and patient-centered communication in medical consultations. To our knowledge, only one study, more than five years ago, directly compared patient-centered communication skills to SDM behavior [21]. Several authors have stressed the importance of further studies investigating SDM in the context of broader humanistic aspects of physician-patient communication [21,23].

This study examined the relationship between SDM and patient-centered communication in videotaped consultations between medical specialists and their patients in a large general hospital. The extent of and the correlation between the two are described. Furthermore we studied the combined occurrence of a high versus low degree of SDM and/or patient-centered communication, and the distribution of specialists’ characteristics and patient satisfaction across these combinations of SDM and patient-centered communication.

A better understanding of the relationship between SDM and patient-centered communication can be used to promote the desired integration of “pristine shared decision making” and “apparent communication and connection” for example in medical communication training.

2. Methods

2.1. Setting

We analyzed video-recorded medical consultations of hospital outpatients at Isala Hospital, Zwolle, the Netherlands, an 1100-bed general teaching hospital, situated in a mixed urban-rural area serving a population of approximately 600,000 people. Participating specialists were recruited from a previous cross-sectional survey [1]. To protect the anonymity of patients, video recording only included the specialist. An independent researcher (ED) obtained informed consent before patient enrolment. For the current study, we randomly selected 82 medical consultations (two per specialist) from the complete dataset of 781 consultations, for reasons of feasibility and representativeness.

2.2. Instruments

Independent and blinded raters performed patient-centered communication (PCC) skills application analysis, using the Four Habits Coding Scheme, and assessment of the degree of SDM using the OPTION⁵ scale (i.e., raters who scored the Four Habits Coding Scheme scores were blinded to the OPTION⁵ scale, and vice versa, and rated only one of the two instruments). Patients completed the Net Promoter Score for patient satisfaction.

2.3. The Four Habits Coding Scheme

The Four Habits Coding Scheme (4HCS, Table A) is a reliable and validated, widely used instrument to evaluate the application of PCC skills by physicians from an external rater’s perspective [21,34–36]. It is theoretically grounded in the ‘Four Habits Model’ which is used to teach communication skills to thousands of clinicians in the United States and Europe [22,36–38]. The first habit, ‘Invest in the beginning’, assesses rapport building, putting patients at ease, and agenda setting. Habit 2, ‘Eliciting the patient’s perspective’, concerns showing interest in the patient’s understanding and the impact of the problem and the patient’s goal for the visit. Habit 3 assesses the physician’s demonstration of empathy and habit 4 addresses to what extent the physician invests in the end of the consultation (e.g. patient-centered understandable

information transfer, clear explanation of rationale, shared decision making, clear follow-up plan).

Each item is scored on a Likert scale ranging from 1 to 5 (higher scores indicate more desired behavior), with total scores for each habit (which range from 6 to 30; 3–15; 4–20; and 10–50, for Habits 1, 2, 3 and 4, respectively). The 4HCS total score is calculated by adding the total scores for each of the four habits (range score: 23–115) [21,39]. Two raters (VS and PB) independently performed the 4HCS ratings after careful consideration of the 4HCS scheme. They achieved alignment of coding results by discussing differences and resolving them by consensus for the first 9 medical consultations. Subsequently, we calculated intra-class correlations of absolute agreement, on total and habit scores, over 6 consultations scored independently by the two raters, using 0.7 as a cut-off for acceptable inter-rater-agreement [34,40]. To forestall inter-rater drifting, every 15 consultations the two independent raters rated the same consultation (n = 4) assessing intra-class correlations again. One rater (VS) rated five consultations twice with a time interval of five weeks to analyze intra-rater drifting.

2.4. OPTION⁵

The Observing Patient Involvement (OPTION) scale was developed to assess the extent to which physicians involve patients in decision-making processes, as assessed by an external rater (Table B) [41–44]. It is widely used to assess SDM [43]. It consists of 5 items, reflecting steps in the SDM process: Creating choice awareness (item 1), offering support in deliberation (item 2), providing information about different options (item 3), eliciting patient preferences (item 4), and integrating these as decisions are made (item 5).

Each item is scored on a Likert-scale ranging from 0 to 4 (i.e. 0 = No effort; 1 = Minimal effort; 2 = Moderate effort; 3 = Skilled effort; 4 = Exemplary effort), with a maximum total score ranging from 0 to 20. The total score is rescaled to lie between 0 and 100 by multiplying the total score by 5 [43]. The excellent inter-rater reliability of the OPTION⁵ scores used in this study was described in an earlier report [45].

2.5. Net Promoter Score

Directly after the medical consultations, patients (or parents/guardians of children under 12 years of age and from 12 to 16 years in cooperation with the child) were asked to complete a satisfaction questionnaire containing the Net Promoter Score (NPS), which assesses the likelihood that a patient would recommend the specialist to someone else, on a scale ranging from 0 to 10 (higher score = more likely to recommend the specialist to another person) [46]. Following recommendations from a previous study in the Dutch setting, we report the NPS results on its 0–10-point scale [46].

2.6. Statistical analysis

To analyze the association between the 4HCS and OPTION⁵ scores we used Pearson’s correlation coefficient. We compared specialist characteristics and NPS scores between four groups of specialists, based on dichotomized scores on the 4HCS and OPTION⁵ (being less than or equal to the median or above the median), using chi squared tests for categorical variables and oneway analysis of variance for continuous variables. According to the method of Dijkstra and colleagues [47], specialists were categorized into surgical, medical or supportive discipline. We used SPSSversion 26.

2.7. Ethical considerations

The Medical Ethics Committee of Isala Hospital approved the study (reference number: 180706).

3. Results

3.1. Representativeness of study sample versus root population

There were no statistically significant differences between the entire dataset (n = 781) and the subset of consultations in the present study (n = 82) in patient (i.e. gender, mean age) and consultation characteristics (i.e. new/follow-up consultation), OPTION⁵ and NPS outcomes.

3.2. Demographics

Physician and patient characteristics are presented in Tables 1 and 2. Overall, 41 medical specialists, from 18 disciplines participated, most of whom were male (68%), and between 40 and 50 years of age (44%). There was a balanced representation of medical and surgical specialties (46% and 44%, respectively). The enrolled patients were predominantly female (59%) and relatively old (35% in the 60 + age group). Both new and follow-up consultations were included (35% and 65%, respectively).

3.3. Inter- and intra-rater reliability

The intra-class correlation between raters across the 4HCS was 0.98 [0.96–0.99]. The drifting analysis showed an inter-rater reliability of 0.96 [0.91–0.99] and intra-rater reliability of 0.91 [0.58–0.97]. The intra-class correlation between raters across the OPTION⁵ was 0.94 [0.92–0.95].

3.4. 4HCS and OPTION⁵ scores

One consultation could not be analyzed because of missing data. An overview of 4HCS and OPTION⁵ scores of the remaining 81 consultations is shown in Table 3. The best-executed habit was “investing in the end”, the poorest “eliciting the patient’s perspective”. The highest OPTION⁵ scores were for “giving information or checking understanding about the options” (item 3) and lowest scores for “reassuring the patient that the clinician will support the patient to become informed or deliberate about the options” (item 2).

Table 1

Differences in 4HCS, OPTION⁵ and NPS between medical specialists of different gender, age, and discipline.

		N (%)	4HCS (mean) [SD]	OPTION ⁵ (mean) [SD]	NPS (mean) [SD]
Specialists					
Gender	Male	28 (68%)	65 [18]	16 [16]	8.7 [1.1]
	Female	13 (32%)	78 [15]	20 [18]	8.8 [1.0]
	p-value ^a	–	0.004	0.344	0.842
Age group	30–40 years	8 (19%)	69 [16]	30 [20]	8.9 [1.1]
	40–50 years	18 (44%)	70 [18]	20 [15]	8.9 [1.0]
	50–60 years	9 (22%)	81 [16]	10 [15]	8.6 [1.1]
	60 +	6 (15%)	48 [7]	10 [10]	8.2 [1.0]
		p-value ^b	–	0.002	0.007
Discipline	Medical	19 (46%)	78 [18]	19 [17]	8.9 [1.0]
	Surgical	18 (44%)	62 [15]	18 [17]	8.7 [1.1]
	Supportive	4 (10%)	–	–	–
		p-value ^a	–	<0.001	0.777

^a Independent Samples *t*-test.

^b Oneway analysis of variance.

Table 2

Characteristics of 82 enrolled patients and their consultations.

Gender	Male	Female				
N (%)	34 (41%)	48 (59%)				
Age	0 – 18 years	18–30 years	30–40 years	40–50 years	50–60 years	60 + years
	N (%)	16 (19%)	9 (11%)	5 (6%)	12 (15%)	11 (14%)
Type of visit	New 29 (35%)	Follow-up 53 (65%)				

3.5. Associations between 4HCS, OPTION⁵, NPS and specialist’s characteristics

The correlations between 4HCS and OPTION⁵ were weak, but statistically significant (Table 4). The only moderate correlation (i.e. > 0.4) was found between “habit 4 - invest in the end” and the total OPTION⁵ score. Female specialists showed higher 4HCS scores, but comparable OPTION⁵ and NPS scores than their male colleagues. The same trend was observed when comparing specialists from medical versus surgical disciplines. Older specialists showed considerably lower 4HCS and OPTION⁵ scores, but their NPS was comparable to that of younger specialists (Table 1).

When comparing OPTION⁵ and 4HCS scores between individual specialists (Table 5), we saw that almost four in ten specialists scored lower than median on both scales, one in four scored higher than median on both, and the remaining scored high on one and low on the other. Consultations with lower than median scores on both OPTION⁵ and 4HCS were found predominantly in physicians from surgical disciplines, and in the older age group, whilst consultations with higher than median OPTION⁵ and 4HCS scores were observed mainly in physicians from medical disciplines. There was no significant gender difference between groups. The NPS was significantly higher in the group with higher than median 4HCS and OPTION⁵ scores compared to the other groups.

4. Discussion and conclusion

4.1. Discussion

In comparison to other studies that reported 4HCS and OPTION scores, we found comparable 4HCS-scores and relatively low OPTION scores [36,37,48,49]. These studies took place in comparable settings: new and follow-up outpatient visits to a general hospital [36,37] or family practice [48] in high income countries.

We found only a weak association between specialists’ application of PCC skills and the degree of SDM in medical consultations. The association was largely explained by habit 4: “invest in the end”, possibly because this habit contains a number of behaviors involved in SDM (i.e. items D, F-H and J, see supplementary table A), in combination with the more task-focused orientation of entire Habit 4, compared to the more relationship-oriented focus of the other habits. Instead of viewing health care experiences through the patient’s eyes, which has been presented as “the pinnacle of patient-centered care” [16], the approach to SDM of the physicians in our sample appeared more as a technical or cognitive skill, with relatively little attention to the importance of good communication and connection as part of partnership that patients consider essential for good SDM to occur [24,27–33]. This reflects the task oriented set-up of the OPTION⁵ score, compared to the stronger focus on relationship of the 4HCS (appendix). Our results also show that physicians applying both good SDM and PCC receive significantly higher patient satisfaction scores than the physicians who only execute either PCC or SDM at above mean levels. This suggests that it is the combination of the two that patients value most. Our findings confirm that SDM and PCC are not synonymous [7,15,21,23,24,50], and should not be used

Table 3
4HCS and OPTION⁵ scores.

Item (range)	Scores Median [SD]	Mean [SD] (range)				
4HCS (23–115)	Total	Total	Habit 1	Habit 2	Habit 3	Habit 4
	69.0 [18.6]	69.1 [18.6] (31–114)	17.7 [5.5] (8–30)	7.5 [3.3] (3–15)	11.7 [4.3] (4–20)	32.2 [8.2] (11–50)
OPTION ⁵ (0–100)	Total	Total	Item 1	Item 2	Item 3	Item 4
	15.0 [16.8]	17.0 [16.8] (0–70)	4.9 [4.6] (0–20)	1.0 [2.6] (0–15)	5.2 [4.7] (0–15)	3.0 [3.9] (0–15)

Table 4
Correlations 4HCS and OPTION⁵.

Dependent variables		4HCS total	Habit 1	Habit 2	Habit 3	Habit 4	OPTION ⁵
Predictors							
OPTION ⁵	r ^a	0.29	0.002	0.23	0.29	0.41	–
	p value	0.009	0.989	0.036	0.009	<0.001	–

^a Pearson Correlation coefficient.

Table 5
Associations between linked 4HCS and OPTION⁵ scores and specialist characteristics and NPS.

		Low 4HCS Low OPTION* n = 31 (38%)	High 4HCS Low OPTION* n = 19 (23%)	Low 4HCS High OPTION* n = 12 (15%)	High 4HCS High OPTION* n = 19 (23%)
Gender	Male	27 (87%)	9 (47%)	8 (67%)	11 (58%)
	Female	4 (13%)	10 (53%)	4 (33%)	8 (42%)
	p-value ^a	0.020			
Discipline	Medical	8 (31%)	11 (69%)	4 (33%)	14 (74%)
	Surgical	18 (69%)	5 (31%)	8 (67%)	5 (26%)
	p-value ^a	0.009			
Age group	30–40	2 (7%)	4 (21%)	4 (34%)	6 (32%)
	40–50	14 (45%)	9 (47%)	6 (50%)	7 (37%)
	50–60	5 (16%)	6 (32%)	1 (8%)	5 (26%)
	60+	10 (32%)	0 (0%)	1 (8%)	1 (5%)
	p-value ^a	0.026			
NPS mean [SD]		8.6 [1.2]	8.8 [0.9]	8.4 [1.1]	9.6 [0.5]
	p-value ^{b,c}	0.002			

* Low = lower than or the same as median, high = higher than median.
^a Chi square test.
^b Oneway analysis of variance.
^c Additional post-hoc analysis: High 4HCS-High OPTION compared to: Low 4HCS-Low OPTION: p = 0.004; High 4HCS-Low OPTION: p = 0.056; Low 4HCS-High OPTION: p = 0.009.

interchangeably. If SDM is to be used as a patient-centered practice, as is aimed for [10,16,23], it needs to be fundamentally integrated with PCC.

Our results thus show that the integration of SDM and PCC by many physicians in this study leaves considerable room for improvement. The lack of integration of PCC aspects in SDM may be related to the efficiency focus of contemporary medical specialist care, in which administrative tasks and meeting quality metrics can take up half of the consultation time [51,52], combined with a lack of training in communication skills [53]. To enable physicians to deliver integrated SDM and PCC, systematic training of communication skills, including practice and constructive feedback, should be implemented [53]. To our knowledge, a training that specifically focuses on the delivery of integrated SDM and PCC has not been reported. However, PCC training, following the four habits framework, has previously been shown to be

effective, also in the European health care setting [37,38], with significant improvements of patient-centered communication skills, self-efficacy (without significant increase of consultation duration) [37, 38] and patient satisfaction [54].

Our study is in agreement with Kunneman and colleagues’ observation [23] that good SDM techniques can co-exist without apparent connection (as part of PCC). To our knowledge, the association between SDM and PCC behaviors has only been studied once before [21]. In that study from Germany, only the 4HCS dimension “invest in the end” was significantly associated with the OPTION score, which is in line with our results. Three other studies reported only on the association between certain aspects of PCC and SDM. Two of these studies [30,55,56] found positive moderate correlations between patient-reported physician’s empathy and SDM. The third [57] found no significant correlation between the proportion of socio-emotional talk (e.g. showing understanding, empathy [58]) and parents’ assessment of SDM. None of these studies assessed the relationship between the association of SDM and PCC behaviors and specialists’ characteristics. Our finding of higher than median SDM and PCC scores in medical compared to surgical specialists is in line with the previously reported higher support for SDM as the preferred decision-making model in specialists from medical disciplines, compared to their surgical colleagues [1]. For PCC behaviors, one study found no significant differences in PCC scores between physicians from medical and surgical specialists [37]. Previous studies presented conflicting results on the association between physician gender and PCC behavior. Two studies reported higher PCC scores for female physicians [59,60], while another study did not [37], in agreement with our findings (data not shown). The observation that older doctors employed SDM and PCC considerably less often than younger doctors may reflect the waning predominance of the paternalistic approach in medicine, but is also of concern because they act as role models for junior doctors regarding communication skills [37].

4.1.1. Strengths and limitations

A major strength of our study is the examination of SDM in the context of the entire medical consultation and patient-physician relationship which, although stressed as important [7,23], has hardly ever been done previously [23]. Another strength is the use of well-validated instruments to assess PCC and SDM, and their application by independent observers with excellent inter-rater reliability. We acknowledge the following limitations. First, the OPTION⁵ scores showed relatively low variance, limiting the power of our study to find a meaningful association between SDM and PCC. However, the limited variation in OPTION scores are comparable to those found in earlier studies [49], and apparently reflect current clinical practice. The cross-sectional nature of

this study precludes causal inference. The study was performed in a single center, limiting the generalizability of the results. However, the inclusion of 41 specialists from 18 disciplines offers broad and representative coverage of current medical specialists' practice. The voluntary enrollment of specialists who knew about the goal of the study may have resulted in selective inclusion of specialists with superior communication skills, however in that case above average 4HCS and OPTION⁵ scores would be expected, which was not the case in our sample.

4.2. Conclusion

There is only a weak association between specialists' application of PCC skills and the degree of SDM in medical consultations between patients and medical specialists; a high degree of SDM and low degree of PCC (and vice versa) frequently occur. Patients seem to value specifically the combination of a high degree of both SDM and PCC. The observations of our study underline that SDM and PCC are not synonymous, and suggest that isolated training of physicians to apply SDM or PCC is likely to be insufficient to promote patient-centered care.

4.3. Practice implications

Future research should explore the value of integrated training of SDM and PCC, safeguarding establishment of adequate partnership building to enable patient's involvement in decision-making that respects their wants, needs and preferences.

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CRedit authorship contribution statement

Siebinga: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Visualization **Driever:** Conceptualization, Methodology, Investigation, Resources, Writing – review & editing **Stiggelbout:** Conceptualization, Methodology, Writing – review & editing **Brand:** Conceptualization, Methodology, Validation, Writing – original draft, Writing – review & editing, Supervision, Project administration, Funding acquisition.

Author's contribution

All authors have individually contributed to the article: in drafting the article and revising it critically for important intellectual content and have approved the final version submitted.

Confirmation

"I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story."

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.pec.2022.03.012](https://doi.org/10.1016/j.pec.2022.03.012).

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