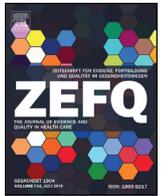




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Exploring the use of Option Grid™ patient decision aids in a sample of clinics in Poland



Untersuchung zur Anwendung von Option-Grid™-Entscheidungshilfen für Patienten in polnischen Kliniken

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ABSTRACT

Background: Research on the implementation of patient decision aids to facilitate shared decision making in clinical settings has steadily increased across Western countries. A study which implements decision aids and measures their impact on shared decision making has yet to be conducted in the Eastern part of Europe.

Objective: To study the use of **Option Grid™** patient decision aids in a sample of Grupa LUX MED clinics in Warsaw, Poland, and measure their impact on shared decision making.

Method: We conducted a pre-post interventional study. Following a three-month period of usual care, clinicians from three Grupa LUX MED clinics received a one-hour training session on how to use three **Option Grid™** decision aids and were provided with copies for use for four months. Throughout the study, all eligible patients were asked to complete the three-item CollaboRATE patient-reported measure of shared decision making after their clinical encounter. CollaboRATE enables patients to assess the efforts clinicians make to: (i) inform them about their health issues; (ii) listen to ‘what matters most’; (iii) integrate their treatment preference in future plans. A hierarchical logistic regression model was performed to understand which variables had an effect on CollaboRATE.

Results: 2,048 patients participated in the baseline phase; 1,889 patients participated in the intervention phase. Five of the thirteen study clinicians had a statistically significant increase in their CollaboRATE scores ($p < .05$) when comparing baseline phase to intervention phase. All five clinicians were located at the same clinic, the only clinic where an overall increase (non-significant) in the mean CollaboRATE top score percentage occurred from baseline phase ($M = 60\%$, $SD = 0.49$; $95\% \text{ CI } [57-63\%]$) to intervention phase ($M = 62\%$, $SD = 0.49$; $95\% \text{ CI } [59-65\%]$). Only three of those five clinicians who had a statistically significant increase had a *clinically* significant difference.

Conclusion: The implementation of **Option Grid™** helped some clinicians practice shared decision making as reflected in CollaboRATE scores, but most clinicians did not have a significant increase in their scores. Our study indicates that the effect of these interventions may be dependent on clinic contexts and clinician engagement.

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ZUSAMMENFASSUNG

Hintergrund: Die Anzahl der Forschungsarbeiten zur Implementierung von Entscheidungshilfen für Patienten zur Unterstützung von partizipativer Entscheidungsfindung (PEF) im stationären Bereich hat in den westlichen Ländern stetig zugenommen. In Osteuropa steht eine Studie, in der Entscheidungshilfen implementiert und ihre Wirkung auf die partizipative Entscheidungsfindung gemessen wird, dagegen noch aus.

Ziel: Die Anwendung von **Option-Grid™**-Entscheidungshilfen für Patienten in einer Stichprobe von Kliniken der LUX-MED-Gruppe in Warschau (Polen) zu untersuchen und ihren Einfluss auf die partizipative Entscheidungsfindung zu bestimmen.

Methodik: Es wurde eine Prä-Post-Interventionsstudie durchgeführt. Im Anschluss an eine dreimonatige Phase mit Standardversorgung erhielten Ärzte aus drei LUX-MED-Kliniken eine einstündige Schulung zur Anwendung von drei **Option-Grid™**-Entscheidungshilfen; zudem wurden ihnen Exemplare der Entscheidungshilfe für einen Zeitraum von 4 Monaten ausgehändigt. Im Verlauf der Studie wurden alle geeigneten Patienten nach ihrer Arztkonsultation gebeten, den aus drei Items bestehenden CollaboRATE-Patientenfragebogen zur partizipativen Entscheidungsfindung auszufüllen. CollaboRATE versetzt Patienten in die Lage, ärztliche Bemühungen bezüglich der folgenden drei Aspekte zu beurteilen: (1) Aufklärung des Patienten über seine Erkrankung; (ii) Zuhören, „was dem Patienten am wichtigsten ist“; (iii) Berücksichtigung der Behandlungspräferenzen des Patienten in späteren Behandlungsplänen. Um festzustellen, welche Variablen Einfluss auf CollaboRATE haben, wurde eine hierarchische logistische Regression durchgeführt.

Ergebnisse: 2048 Patienten nahmen an der Baseline-Phase und 1889 Patienten in der Interventionsphase teil. Beim Vergleich zwischen Baseline- und Interventionsphase wiesen fünf der 13 Studienärzte eine statistisch signifikante Zunahme ihrer CollaboRATE-Scores auf ($p < 0,05$). Alle fünf Ärzte waren an derselben Klinik tätig, der einzigen Klinik, wo es insgesamt zu einem (nichtsignifikanten) Anstieg in den mittleren prozentualen CollaboRATE-Höchstwerten zwischen Baseline- ($M = 60\%$, $SD = 0,49$; $95\%-CI [57-63\%]$) und Interventionsphase ($M = 62\%$, $SD = 0,49$; $95\%-CI [59-65\%]$) kam. Bei nur drei dieser fünf Ärzte ergab sich außer dem statistisch signifikanten Anstieg auch ein *klinisch* relevanter Unterschied.

Schlussfolgerung: Einigen Ärzten hat die Implementierung von **Option Grid™** geholfen, PEF zu praktizieren, was sich in den CollaboRATE-Scores widerspiegelt, allerdings konnte die Mehrzahl der Ärzte keinen signifikanten Anstieg in ihren Scores erzielen. Unsere Studie zeigt, dass der Effekt solcher Interventionen möglicherweise vom Klinikumfeld und vom ärztlichen Engagement abhängig ist.

Introduction

Shared decision making, a process that involves patients in medical decisions, has been shown to improve patient-clinician communication, decision outcomes, and patient satisfaction [1,2]. As a result, it has become increasingly embedded in healthcare policy across Western countries [1,3]. A recent editorial describes the accomplishments in areas of policy, research, and implementation of shared decision making in twenty-two countries [3]. However, there is little evidence of shared decision making activity in Eastern Europe, or in countries formerly under communist influence [3]. A randomized controlled trial in Romania showed that using decision aids is an effective way of portraying risk over time with, and without, the use of oral anticoagulants for treatment of atrial fibrillation [4]. We were unable to find other studies conducted in the former communist states of Eastern and Central Europe [4]. This might be because of the ‘cultural imprint’ in this part of Europe. A study conducted in East Germany suggested a lower preference for shared decision making in comparison to patients living in West Germany, which could be due to the influence of the former authoritarian political structure [5].

Patient decision aids provide information on the pros and cons of comparable treatment options for preference-sensitive healthcare topics [6,7]. A Cochrane systematic review of patient decision aids indicates that these tools increase patient knowledge, risk perception, patient satisfaction, and participation in decision-making [2]. These tools are available in various lengths, formats, and modes of delivery [8]. Some are longer and are formatted to be used prior to the consultation, while other shorter tools are created for use in the encounter – also known as encounter patient decision aids [8].

Option Grid encounter decision aids are brief, evidence-based tools that describe the available healthcare options associated with a particular health condition by using a set of frequently asked

questions [9]. Studies show that these shorter encounter decision aids are practical and easier to use compared to the pre-encounter tools [7,8,10,11]. However, there is limited evidence about the impact of pre-encounter tools on healthcare communication (using observer measures).

Encounter-based decision aids hold promise at improving communication in healthcare and impacting interactions between patients and their healthcare professionals [10].

A recent stepped wedge trial with 72 patients demonstrated that six physiotherapists who used an Option Grid for osteoarthritis of the knee showed higher levels of shared decision making (using Observer OPTION-12). Patients also demonstrated increased knowledge and readiness to decide on the most appropriate treatment option [12]. Wood et al.’s qualitative study examined how the Option Grid tools influenced shared decision making when used with an interpreter. Results indicated that patients asked more questions when the tool was present in the encounter [13].

Randomized trials have also shown that Option Grid is feasible to use by clinicians [12]. These tools help clinicians provide information, structure the conversation, and confer agency to the patient [11,14]. These positive outcomes have led a few healthcare organizations to try and adopt Option Grid as a means to practice shared decision making with varying degrees of success [15]. There is some evidence to suggest that having a ‘champion’ clinician in the organization improves the likelihood of routine adoption, as opposed to using financial incentives to entice clinicians into using these tools [15]. Yet, it is clear that challenges to the implementation of encounter tools in clinic workflow patterns persist [16].

Barriers to implementing patient decision aids exist at multiple levels in the healthcare system [16]. A systematic review by Elwyn et al. [17] indicates that some clinicians are reluctant to use decision aids because they do not agree with the content embedded in the tools, or do not want to impose the ‘decisional responsibility’

on their patients. Time pressure and competing priorities make it difficult for clinicians to incorporate decision aids in their routines [17]. These barriers were also apparent in the MAGIC program, which was commissioned in the United Kingdom in an effort to implement shared decision making in routine care [18]. Clinicians in the program believed that providing the tool in the encounter was equivalent to practicing shared decision making [18]. This reflects the need to dedicate resources to educating clinicians about shared decision making as well as how to use patient decision aids.

We know that implementing shared decision making in the clinical setting is difficult [7]. Despite a growing body of research on implementation barriers and strategies, we do not yet know the impact that individual doctors or clinics have on implementing patient decision aids in the medical encounter. Is it the cultural context, the organizational factors, or the attitudes of individual clinicians? We set out to routinely implement Option Grid encounter patient decision aids in clinical settings to examine their influence on shared decision making [19]. We believe this is the first time this approach has been taken in Poland, and therefore gave us an opportunity to examine implementation challenges in a context where shared decision making has not been promoted at the policy level. The aim of this study was to examine the use of **Option Grid™** patient decision aids in a sample of Grupa LUX MED clinics in Warsaw, Poland, and measure their impact on shared decision making.

Methods

A mixed-method approach was used. First, a pre-post interventional study was conducted at three Grupa LUX MED clinics in Warsaw, Poland. Second, to better understand the context and quantitative results from the pre-post interventional study, we asked participating clinicians to fill out a brief survey and conducted a debrief interview with the study project manager at Grupa LUX MED in Warsaw. See [Figure 1](#) for an overview of the study design.

Settings and Participants

Grupa LUX MED is the largest private healthcare provider in Poland serving over 1.5 million patients across the country with over 170 facilities and almost 4,600 clinicians. Clinicians employed at three Grupa LUX MED clinics in Warsaw, Poland (Postepu St Clinic, Marriott Hotel Clinic, and Szerner St Clinic) were invited to take part in the study by their Medical Director. These clinics were selected by the Medical Director due to their high patient volume. All patients over 18 years old visiting one of the participating clinicians were invited by research assistants in the waiting room to take part in the study, irrespective of the reason for their clinic visit. The healthcare privacy laws in Poland protecting clinicians' and patients' identity influenced the data collection procedures and design of the study. Unique patient identifiers were used in both the baseline phase of data collection (usual care) and intervention phase (Option Grid; see data collection section), to identify a sub-sample of patients who had one of three Grid-specific conditions (i.e., patients who had heartburn, osteoarthritis of the knee, or were considering statins). Specifically, each clinician was provided with three-letter codes – each code corresponding to patients who had one of the three Grid-specific condition and one code for all remaining patients. Baseline data collection was conducted from February 2, 2016, to May 17, 2016. After the baseline phase a one-hour workshop was delivered to participating clinicians in Warsaw on May 11, 2016.

Intervention

Both the workshop and the Option Grid patient decision aids represented the interventions in our study. GE presented a one-hour power point presentation to participating clinicians in a workshop that provided a definition of shared decision making, described its principles, explained how it could be implemented, and provided a blueprint (three-talk model) [20] on how to practice it. The presentation had three objectives: (i) deepen understanding of shared decision making; (ii) get familiar with the study, CollaboRATE and Option Grid; (iii) feel confident using Option Grid with patients. Clinicians were expected to use the three Option Grid decision aids whenever relevant to their patients, after the workshop.

For this study, the selection of Option Grid patient decision aids was based on high patient volume at the participating Grupa LUX MED clinics. The three patient decision aids were translated into Polish using an established translation protocol to ensure fidelity to the original version and cultural adaptation for local clinical acceptability [20]. The protocol is an adaptation of the translation procedure of the Agency for Healthcare Research and Quality (AHRQ), successfully used in previous studies [21–23]. A bilingual reviewer compared and reconciled the translations to the original version until consensus was achieved. The last step relied on data from interviews with both patients and clinicians fluent in the target language to ensure cultural appropriateness. Translations were tested using two rounds of cognitive debriefing interviews.

We interviewed two doctors and two patients per round, per Option Grid. In total, we completed 24 cognitive debriefing interviews.

Consent Process

Patients of the 13 participating clinicians were recruited at the three participating Grupa LUX MED clinics. Patients recruited in the baseline phase were not required to sign a consent form. In the intervention phase, research assistants informed patients, assessed their eligibility and gauged their interest in participating prior to obtaining consent. Consent forms were prepared in collaboration with Grupa LUX MED to ensure comprehensibility and embedded in the online survey completed post-consultation (see data collection). Patients reviewed the consent form prior to the six-item questionnaire on the tablet computer provided to them post-consultation (see data collection for more details).

Outcome Measures

CollaboRATE is a three-item, patient-reported experience measure of shared decision making [24]. CollaboRATE evaluates the core tenets of shared decision making, namely: (i) information provision and explanation of health issues, (ii) elicitation of patient preferences, (iii) integration of patient preferences into decisions [23]. It asks patients to respond to the following questions on a scale of 0 (no effort was made) to 9 (every effort was made):

1. How much effort was made to help you understand your health issues?
2. How much effort was made to listen to the things that matter most to you about your health issues?
3. How much effort was made to include what matters most to you in choosing what to do next?

The CollaboRATE score represents a percentage of patients who give a 'top score.' A 'top score' is achieved when a patient gives the highest possible score (9) for each item of CollaboRATE.

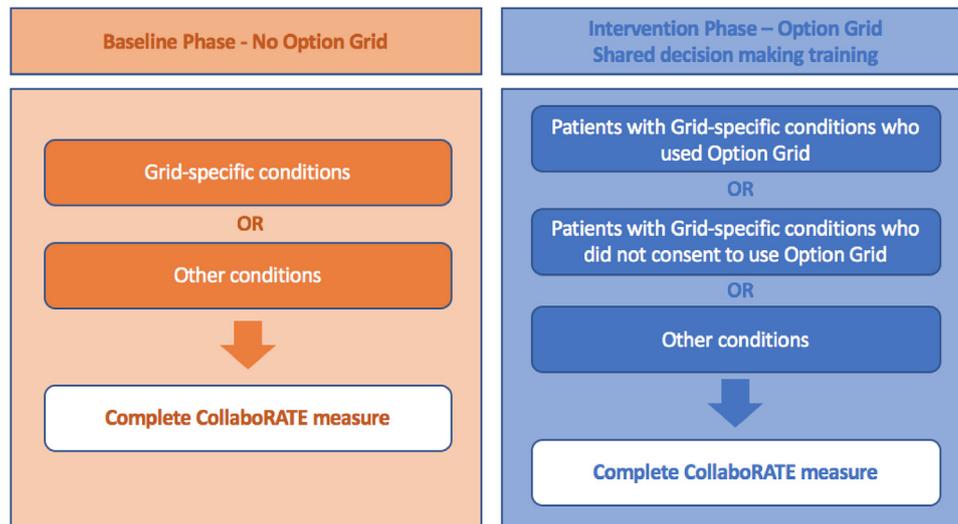


Figure 1. Summary of study design.

The top-score approach has been validated as a strategy for reducing the impact of ceiling effects for patient-reported measures [24]. We are aware of other patient-reported shared decision making measures such as the Perceptions of Involvement in Care Scale (PICS), the SDM-Q-9, and the Consumer Assessment of Health Care Providers and Systems Clinician and Group (CG-CAHPS®), but we opted to use CollaboRATE because it is a fast and frugal measure that can be easily implemented in clinic workflow patterns [25–28]. Translation of CollaboRATE into Polish followed the same process as Option Grid patient decision aids.

Data Collection

To comply with privacy laws, participating clinicians provided all eligible patients with a three-letter code in the exam room before completing the visit. This ensured that the patient's information collected, including health condition and characteristics (age and gender), were de-identified. In both baseline and intervention phases, the patient completed a six-item questionnaire on a tablet computer provided by a research assistant, immediately following the visit with their clinician. The questionnaire included an information and consent page, the three-item CollaboRATE measure as well as gender, age range, and the three-letter code they received from their provider. In the intervention phase, eligible patients who provided consent used the Option Grid decision aid with their clinician prior to completing the six-item questionnaire. The manner in which we collected the data (de-identification), and the sheer volume of the dataset enabled us to report the patient's age (in categories) and gender in the baseline and intervention phase while respecting Polish privacy laws. To protect privacy, we did not collect any clinician demographic information.

After the intervention phase, clinicians received a five-item survey via email to assess their attitude toward the CollaboRATE measure and the acceptability, feasibility, and impact of Option Grid decision aids in routine clinical practice. Clinicians had the opportunity to rate items on a Likert scale – strongly disagree, disagree, unsure, agree, strongly agree – for each of the first four survey statements. For the last statement, clinicians had to indicate if they had a positive or negative attitude to the use of Option Grid. To reinforce our understanding of clinician attitude toward Option Grid and CollaboRATE, we conducted a debrief interview with the study project manager at Grupa LUX MED.

Data Analysis

First, to investigate the effect of using Option Grid on shared decision making in the intervention phase, we conducted a one-way ANOVA comparing the CollaboRATE scores from encounters where clinicians used Option Grid for Grid-specific conditions to scores from encounters where patients had one of the Grid-specific conditions but did not consent to use Option Grid.

Second, to evaluate the unique contribution of clinicians and clinics to shared decision making, a Hierarchical Logistic Regression model was created using four blocks: patient characteristics (to control for age and gender), Grid-specific conditions and other conditions, the specific clinic, and clinicians. The dependent variable was the dichotomous “CollaboRATE.top.score” variable (0 = received a top score; 1 = did not receive a top score). We used the Hierarchical Logistic Regression model to account for the variability at each level in the hierarchy and to analyze the cluster effects at different levels within the model. We wanted to identify a statistically significant change in CollaboRATE scores, but we also wanted to detect any *clinically* significant difference. To do this, we used the ‘distribution-based method’ to determine the minimal important difference (MID) in CollaboRATE scores at the clinician level [29]. This signifies that clinicians ‘improving more than one-half of the outcome score’s standard deviation have achieved a minimal clinically important difference [30].’ Essentially, the minimal clinically important difference is the ‘smallest change in an outcome that a patient would identify as important. It is a threshold above which the outcome experienced could be considered relevant by the patient [31].’

Finally, we examined the clinicians’ responses to the survey statements to help us understand the clinicians’ attitudes towards CollaboRATE and Option Grid, and their views on the acceptability, feasibility, and impact of Option Grid decision aids in routine clinical practice. We also summarized the project manager’s responses to the debrief interview (see Appendix 2 for interview guide).

Results

Demographics

Thirteen clinicians participated in the study. Five gastroenterologists, two orthopedic surgeons, one family doctor, and one cardiologist were located at the Szernera St Clinic. Two family

Table 1
Patient demographics for baseline and intervention phases*

Variable	Baseline n (%)	Intervention n (%)
Gender		
Male	887 (43)	768 (41)
Female	1121 (55)	1065 (56)
Missing	40 (2)	56 (3)
Age		
18–29	258 (12)	214 (11)
30–39	509 (25)	430 (23)
40–49	403 (20)	376 (20)
50–59	362 (18)	353 (19)
60–69	363 (18)	320 (17)
70+	128 (6)	150 (8)
Missing	25 (1)	46 (2)
Total	2048 (100)	1889 (100)

* Due to privacy laws in Poland, we were not able to include clinician demographic data.

doctors and one cardiologist were located at the Marriott Hotel Clinic. One orthopedic surgeon was located at the Postepu St Clinic.

In the baseline phase, we collected data from 2048 patients over a three-month period. In the intervention phase, we collected data from 1889 patients. The majority of patients who participated in each phase were female (56%). See Table 1 for details.

The Effect of Option Grid Decision Aids on CollaboRATE

In the intervention phase, there was a small decrease in the mean CollaboRATE top score percentage when we compared patients who had consented to use Option Grid ($M = 66\%$, $SD = 0.47$; $95\% \text{ CI } [61\%–72\%]$), and those who had the Grid-specific condition, but *did not* consent to use Option Grid ($M = 68\%$, $SD = 0.47$; $95\% \text{ CI } [63\%–73\%]$). The one-way ANOVA result confirmed that the difference between those two groups was not significant ($F(1,652) = 0.12$, $p = .73$).

Clinics and Clinician Role in CollaboRATE Scores

Results indicate that the patient's age – being in the younger age categories – was associated with higher CollaboRATE top score (see Table 2 for details). There were five clinicians [clinician 1 (77% to 82%, $p < .01$), clinician 2 (65% to 75%, $p < .01$), clinician 9 (56% to 71%, $p < .01$), clinician 10 (55% to 80%, $p < .01$), and clinician 11 (57% to 62%, $p < .01$)] who had a statistically significant increase in their mean CollaboRATE top score percentage from baseline phase to intervention phase (see Table 2 for details). All five clinicians were located at the same clinic, the Szernera St. Clinic. Clinician 6 had a statistically significant decrease in the mean CollaboRATE top score percentage (73% to 51%, $p < .01$). Clinician 12 dropped out of the study in the intervention phase of the study. Figure 2 shows mean CollaboRATE top score at baseline and intervention for each clinician.

In terms of clinical significance, only three of the five clinicians (clinician 1, clinician 9, and clinician 10) who experienced a significant increase in their mean CollaboRATE top score percentage from baseline phase to intervention phase had a MID – which ranged from 0.05 to 0.83. MID was not detected in any other study clinician.

The Szernera St. Clinic was the only clinic where an overall increase (non-significant) in mean CollaboRATE top score percentage occurred when comparing baseline phase ($M = 60\%$, $SD = 0.49$; $95\% \text{ CI } [57\%–63\%]$) to intervention phase scores ($M = 62\%$, $SD = 0.49$; $95\% \text{ CI } [59\%–65\%]$). The Marriott Hotel Clinic experienced an overall decrease in mean CollaboRATE top score percentage when comparing baseline phase ($M = 78\%$, $SD = 0.42$; $95\% \text{ CI } [74\%–81\%]$) to intervention phase scores ($M = 73\%$, $SD = 0.45$; $95\% \text{ CI } [69\%–77\%]$). The Postepu St Clinic also experienced a decrease in CollaboRATE

Table 2
Hierarchical Logistic Regression analysis to identify the variables associated with CollaboRATE top score^{a,b}

Variables	β	Standard Error	p-value	Odds Ratio
Patient's Age 18–29	0.139	0.037	0.000	1.149
30–39	-0.763	0.258	0.003	0.466
40–49	-0.769	0.235	0.001	0.463
50–59	-0.849	0.234	0.000	0.428
60–69	-0.536	0.235	0.023	0.585
70+	-0.358	0.237	0.130	0.699
Patient Gender	-0.170	0.104	0.101	0.844
Grid-specific condition – Statin	-0.274	0.305	0.947	1.021
Grid-specific condition – Knee Osteoarthritis	0.328	0.377	0.384	1.388
Grid-specific condition – Heartburn	-0.565	0.406	1.939	0.164
Other	0.329	0.404	0.082	1.015
Szernera St Clinic	-0.274	0.368	0.456	0.760
Marriott Hotel Clinic	0.102	0.950	0.914	1.108
Postepu St Clinic	0.114	0.972	0.691	0.868
Clinician 1	1.170	0.380	0.002^c	3.220
Clinician 2	1.104	0.424	0.009	3.017
Clinician 3	1.147	0.956	0.230	3.148
Clinician 4	-0.268	0.943	0.776	0.765
Clinician 5	1.325	0.960	0.167	3.762
Clinician 6	1.160	0.401	0.003	3.172
Clinician 7	-0.250	0.395	0.528	0.779
Clinician 8	0.410	0.392	0.296	1.506
Clinician 9	1.172	0.407	0.004^c	3.229
Clinician 10	1.312	0.460	0.004^c	3.714
Clinician 11	1.155	0.389	0.003	3.172
Clinician 13	-0.404	.348	0.245	0.667

^a Dependent variable: CollaboRATE top score.

^b Adjusted $R^2 = 0.136$.

^c Minimal important difference detected.

scores between the baseline ($M = 61\%$, $SD = 0.49$; $95\% \text{ CI } [55\%–67\%]$) and intervention phases ($M = 47\%$, $SD = 0.50$; $95\% \text{ CI } [42\%–53\%]$).

Survey and Debrief Interview Results

Of the thirteen participating clinicians, twelve answered the attitudinal survey. Nine clinicians (75%) agreed that Option Grid made it easier to promote shared decision making. Seven clinicians (58%) indicated that they had a positive attitude toward Option Grid. Six respondents (50%) answered *unsure* when presented with the statement: “it is easy to use CollaboRATE as a measure of shared decision making from a patient viewpoint”. Five clinicians (42%) reported a negative attitude (see Appendix 1).

The interview with the study project manager revealed that some clinicians were prepared to use the intervention to improve their practice, while others were hesitant to use the tool due to time constraints. According to the project manager, younger clinicians appeared more receptive to using the tool. The younger clinicians seemed to make a concerted effort to improve interactions with patients and generally had a favorable impression of the Option Grid, appreciating the layout of the tool. The tool helped them better organize the conversation. Clinicians with more clinical experience had cited time constraints and disagreement with the clinical content of the tool. A few clinicians had suggested that some of the tools were biased toward one particular option.

Discussion

Overall, the use of the Option Grid for patients in Grid-specific conditions did not lead to significant differences in CollaboRATE scores. The Hierarchical Logistic Regression model did however indicate a significant increase in CollaboRATE top score percentage for five of the thirteen clinicians – all five were located at

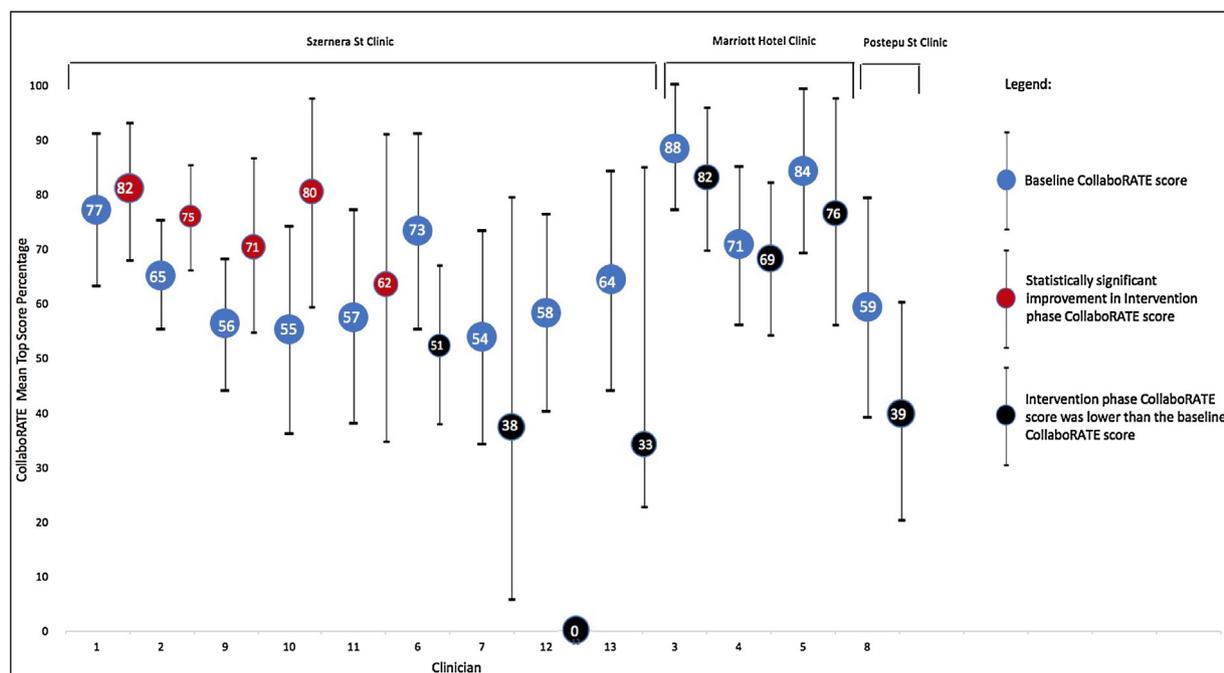


Figure 2. Mean CollaboRATE top score percentage at baseline phase and intervention phase for each clinician.

the same clinic. Only three of those five clinicians had a clinically meaningful difference in their CollaboRATE top score percentage in the intervention phase compared to the baseline phase. One clinician experienced a significant decrease in their mean CollaboRATE percentage. The results of the survey and debrief interview provide context for our statistical results. The survey indicates that the clinicians included in this study had mixed attitudes toward the implementation of Option Grid. The project manager informed us that many clinicians (primarily the older clinicians) were concerned about time constraints and content bias and did not understand how to use these tools.

A strength of this study is the implementation of the CollaboRATE measure on a large scale ($n = 3937$) to test the effect of Option Grid on shared decision making with thirteen clinicians across three different sites in Poland. Another strength is the thorough translation process of the Option Grid and CollaboRATE measure. One of the limitations of our study is that the dataset contained only patient's age and gender demographics and no clinician demographics because of privacy laws in Poland that protect patients and clinicians' identity. Other demographic variables like the patient's level of education, socio-economic status, and date of diagnosis may have had an impact on CollaboRATE scores, although no prior evidence exists that this may be the case. Interviewing the study clinicians would have strengthened the findings our study. However, given language barriers and time constraints, this was not possible.

Barr et al. demonstrated the discriminative validity of the CollaboRATE measure [32]. It is now being used in ten different countries and available in Polish. Recently, Barr et al. assessed the CollaboRATE response rate across different modes of administration in a primary care clinic in New Hampshire and found that 68.0% of patients gave their clinicians a top score [23]. Results from our study indicate that patients gave their clinicians a top score 63% of the time. This might reflect the fact that shared decision making has never been promoted in Poland at the policy level and, as far as we can determine, is not taught in medical schools. In contrast, shared decision making has been promoted in the health policy of the United Kingdom and United States [1].

Our results indicate that Option Grid decision aids slightly improve CollaboRATE scores for some clinicians. This was an expected result considering prior research that shows that Option Grid improves patient knowledge, increases patient involvement and readiness to make decisions that align with preferences, and influences clinicians to be more collaborative in their interactions with patients [23,33]. A previous randomized trial that showed the benefit of using a statin decision aid to help clinicians adopt shared decision making as opposed to the patient education pamphlet used at the Mayo Clinic, but we did not see this type of effect with the statin Option Grid used in our study [34]. Despite the positive outcomes associated with Option Grid in the literature, making use of encounter tools like Option Grid is challenging for clinicians [33].

The findings from the debrief interview indicate that time constraints and clinicians' disagreement with the content are significant barriers to implementation. This information mirrors some of the 'structural and conceptual' barriers found in previous studies that assessed the practicability and feasibility of Option Grid decision aids for facilitating shared decision making [23,33]. In our study, we can infer, based on the information provided by the project manager, that the attitudes of older clinicians were much different from the attitudes of younger clinicians, and the likely impact of clinicians' characteristics (i.e. age and their medical area of practice) on CollaboRATE scores was reflected in the statistical model.

All study clinicians whose CollaboRATE scores increased with the use of Option Grid were located at the same clinic. Based on this evidence, we can infer that, to a certain degree, a coherent strategy to implement tools like Option Grid and CollaboRATE in clinic workflow was established at that particular location. A commitment by clinicians to adhere to a shared decision making ethos is an important factor in successful implementation of a patient decision aid [14] and, in turn, can improve patients' perception of how well their preference was discussed and integrated into the decision-making process. Commitment also needs to be demonstrated at higher levels of the healthcare organization, preferably through training and development for the healthcare professionals who will be using the tools. Perhaps the brief, one-hour training

session was not sufficient in helping clinicians understand *why* and *how* these instruments were being used. Further, it is worth noting that the training session was also not delivered by a native Polish speaker, which may have influenced clinicians’ reluctance to use the tool. This may re-enforce the notion that a clinical champion would be an effective mode of communication for shared decision making training. Peer-to-peer training benefits would enable clinicians to ask peers questions that they would feel less confident asking an external host, and the clinical champion would represent a resource for ongoing support throughout the implementation of the tools.

Furthermore, a clinical champion hosting a session would have existing knowledge of the clinical team, so he or she would be able to speak to the potential challenges clinicians would face with implementation of decision aids. Providing structured shared decision making training would confirm the commitment to shifting the clinic culture to a more patient-centered approach and would provide clinicians with the opportunity to learn how to practice it [35].

Future studies need to investigate the implementation of encounter-based decision aids in more settings to determine the factors associated with low CollaboRATE scores at the clinician and clinic level. This would provide more insight into the cultural context and clinician characteristics that underpin the success or failure of routine adoption of patient decision aids. Ultimately, it could help researchers develop implementation strategies tailored to specific cultures and contexts to aid the implementation of shared decision making in regions like Eastern Europe.

Conclusion

The Option Grid intervention helped some clinicians practice shared decision making, but for most, it did not have an effect. The extent to which Option Grid patient decision aids can improve shared decision making is contingent on a variety of factors – mainly the clinician’s attitude toward using a decision aid, the clinicians’ characteristics (e.g., age), the setting in which the intervention is implemented, their understanding of the shared decision making approach, and their understanding of how decision aids can help facilitate a more efficient discussion with patients.

Author Contributions

GE and M-AD designed the study in collaboration with KK, ML, MB, and SM. KK, MB, ML and SM facilitated the recruitment of study clinics and clinicians, collected the data, reviewed the final draft of the manuscript. PS conducted the data analysis and drafted the manuscript. YZ-I supported the data analysis. MB, SM, KK, ML, PB, JS, YZ-I, GE, and M-AD contributed to and edited multiple drafts of the manuscript. All authors reviewed and approved the final draft of the manuscript.

Conflict of Interest

Dr. Glyn Elwyn is the director of &think LLC which owns the registered trademark for Option Grids™ patient decision aids. He provides consultancy in the domain of shared decision making and patient decision aids to: 1) Access Community Health Network, Chicago (Federally Qualified Medical Centers), and to 2) EBSCO Health Option Grids™ patient decision aids. Glyn Elwyn initiated the Option Grid Collaborative, tools that are hosted on a website managed by Dartmouth College, on <http://optiongrid.org/>). Existing Option Grids hosted at this website are freely available until such time as the tools have expired.

Dr. Marie-Anne Durand is also a consultant to Access Community Health Network and contributed to the development of the Option Grid™ patient decision aids, which are licensed to EBSCO Health. Dr Elwyn and Dr. Durand receive consulting income from EBSCO Health and may receive royalties in the future.

All other authors have no conflicts of interest to declare.

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Appendix 1.

The number of clinicians who circled each option on the Likert scale of the study survey.

Statement	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
CollaboRATE is a good measure of shared decision making from a patient viewpoint	0	0	5	5	2
It is easy to use CollaboRATE as a measure of shared decision making from a patient viewpoint	0	0	6	4	2
In my opinion, Option Grid patient decision aids are easy to use with patients in the clinical encounter	0	2	3	6	1
In my opinion, Option Grid makes it easier to do shared decision making	0	2	1	7	2
		Positive		Negative	
My attitude to the use of Option Grid is:		7		5	

Appendix 2.

- 1) First, could you tell us about the doctors’ reactions to being invited to take part in the study?
 - a. Did they all agree to take part?
 - b. Did they need convincing?
 - c. If they did not agree to take part, which reasons did they provide?
 - d. Are you able to identify the main barriers to doctors’ involvement in the study?
 - e. For those who agreed to take part, why did they accept to participate?
- 2) In addition to what was collected in the survey, what is, in your opinion, the doctor’s initial reaction to Option Grid decision aids?
 - a. What did they think about Option Grid?
 - b. Do you know whether it has changed the interactions they have with patients?

- 3) What is, in your opinion, the doctor's reaction to CollaboRATE?
 - a. What did they think about having their patients complete CollaboRATE scores?
 - b. What did they think about receiving CollaboRATE feedback?
- 4) In your opinion, what did doctors think about the training session they attended in May?
- 5) Do you think they would change anything about CollaboRATE?
- 6) Do you think they would change anything about Option Grid?
- 7) Do you think they would change anything about the study and data collection process?
- 8) We know that research assistants were allocated to physicians to help them administer the Option Grid. Do you think this represents a barrier to routine implementation of Option Grid?
- 9) Do you think that doctors would like to continue using Option Grid? Why or why not?
- 10) Do you think that doctors would like to continue using CollaboRATE? Why or why not?
- 11) Do you think that LUXMED would like to continue using CollaboRATE and/or Option Grid? Why or why not?

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