

Effect of Education on Shared Decision-making using Clinical Practice Guidelines: A Randomized Controlled trial.

Shuhei Fujimoto (✉ shuheifujimotobr@gmail.com)

Kyoto University Graduate School of Medicine <https://orcid.org/0000-0001-8031-0604>

Tatsuya Ogawa

Kio University Graduate School of Health Science

Kanako Komukai

Wellness Frontier Co., Ltd

Takeo Nakayama

Kyoto University Graduate School of Medicine

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Abstract

Background: To investigate the influence of the evidence–practice gap on physiotherapists and occupational therapists through shared decision making (SDM) using clinical practice guidelines (CPGs).

Methods: The study was designed as a blocked, randomized controlled multicenter trial. Participants included 126 therapists with 42 continuous samplings from three institutions. Being a permanent employee from any of these institutions was a necessary inclusion criterion. However, participants with disorders (visual, auditory, attentional disorder) were excluded.

An allocator was assigned to mask the participation's attribution until the allocation was completed. The evaluator and analyzer were also masked.

For the intervention group, a workshop was conducted on SDM using CPGs. Lecture on the knowledge of CPGs (CPG group) and lecture on the knowledge of SDM (SDM group) were the control groups.

The primary outcomes were “education, attitudes and beliefs, and interest and perceived role in evidence-based practice (EPIC scale).” The secondary outcome included evidence-based practice (EBP) knowledge. To review the intervention effect of education on SDM using CPGs, two-factor variance analysis (mixed model) was adopted to conduct Holm's method.

Results: In each group, 42 participants were randomized and analyzed. The EPIC scale showed significant difference between the CPG with SDM and CPG groups (CPG with SDM group [mean ± standard deviation, pre/post] 2.4±0.9/4.4±1.7; CPG group 3.0±1.5/3.5±2.0; SDM group 2.6±1.2/ 3.3±1.8). The question on EBP “I learned the foundations for EBP as a part of my academic preparation” showed significant differences between the CPG with SDM and CPG groups [CPG with SDM group 1.8±0.8/2.2±1.0; CPG group 2.3±1.1/ 2.0±1.0].

Conclusion: SDM education using CPGs for physical and occupational therapists improves EBP self-efficacy.

Background

Evidence-based practice (EBP) provides medical care integrated with evidence from clinical study, clinical expertise, and patient value [1]. In actual practice, self-efficacy is essential in knowledge, skills, and attitudes [2-4]. This clarifies the demand for EBP among rehabilitation professionals [5-6].

The knowledge of clinical practice guidelines (CPGs) increases the self-efficacy of EBP [7-9]. Moreover, previous studies have frequently reported on the relevance of the knowledge/attitude of CPGs and that of self-efficacy in EBP [10-12]. A CPG is defined as “...a document that presents appropriate recommendations to assist patients and practitioners in making decisions regarding clinical practice of high importance based on the body of evidence evaluated and integrated by systematic reviews and the balance between benefits and harms [13].” CPGs function as a tool to support the decision making of medical practitioners in clinical practice [14].

In contrast, shared decision making (SDM) is the fundamental communication skill required to conduct EBP [15-17]. Practicing SDM prevents patients and medical practitioners from experiencing perception gaps in clinical practice [18]. Additionally, SDM helps integrate the three elements of EBP, namely research evidence, clinical expertise, and patients' perspectives, which are crucial for making decisions. According to prior studies, the educational effect of SDM increases self-efficacy in EBP, especially in selecting evidence and considering patients' perspectives [19-23].

However, in clinical practice, implementation of CPGs for patient communication is not systematized. It is assumed that when applied simultaneously, SDM and CPGs greatly increase the self-efficacy of EBP.

The purpose of this study was to investigate the influence of self-efficacy in EBP on physiotherapists and occupational therapists through novel educational methods by implementing SDM using CPGs.

Methods

Study design and participants

This study was registered at the University Hospital Medical Information Network center (ID: UMIN000035448), and the report was based on Consolidated Standards of Reporting Trials (CONSORT) [24].

The study was conducted with the approval of the Ever Walk Inc. Research Ethics Committee (Authorization No.: 002).

The study design comprised a multicenter, parallel, randomized control trial. The participants included 126 therapists (physiotherapists and occupational therapists), with 42 continuous samplings from each of the three Japanese medical institutions (allocation ratio: 1:1) selected for the study. The participants were assigned to one of three intervention groups. After receiving explanation regarding the research content, participants gave written consent to participate. Considering the measurement bias of the subjects, the research hypothesis was not explained.

Participants were selected on the basis of the following inclusion criteria: 1) being a permanent employee from one of the institutions, 2) being a full-time employee, and 3) willingness to participate in the research. Exclusion criteria included having disorders that may intervene with the research, such as visual, auditory, or attentional disorders. The existence of the disorders relating to the exclusion criteria was based on self-certification.

Although there was no shift from the protocol, changes were made to the designed randomization while conducting the research. As shown below, block randomization was adopted while considering the characteristic variation of the research institutions, but block randomization was not adopted in the study protocol.

Randomization and blinding

Block randomization was implemented, in which random allocation was based on affiliation (three block sizes). The sealed envelope system in central registration was used for allocation, after the principal investigator had finished selecting the research subjects. Forty-two subjects from each institution were allocated into three groups, with each group having 14 subjects. The allocation was conducted in the order of enrollment in each institution. The allocator was assigned as an educator conducting the educational program. The participant's attribution, except for their affiliation, was masked to the allocators until the completion of the allocation.

The results of the allocation were known only by the educator of the educational program, and the participants were informed after the study had been completed. After completion of the study, participants could join an educational program other than the one to which they were assigned if they wished.

The outcome evaluator and the analyzer were masked. Analysis was undertaken by members who were not involved in allocating the assessment or in conducting the educational program. Results of the acquired outcomes were concealed from other research collaborators until the analysis was completed.

Interventions

For the intervention group, a workshop of a duration of 2 hours was conducted, and lectures were given on SDM using CPGs (CPG with SDM group). The control group was divided into two: one with 2 hours of lecture on the knowledge of CPGs (CPG group) and the other with a lecture on the knowledge of SDM (SDM group).

The workshops conducted on SDM using CPGs were arranged in three ways. The subjects in the first workshop worked in pairs. The task was to verbally guide the blinded partner to a destination without touching them. The aim of this workshop was to understand the difficulty and learn the method of verbally explaining the information.

The second workshop was designed so that subjects could practice explaining whether Fruit A or Fruit B was good for health. Afterward, they studied the elements to effectively explain the benefits in line with the nine steps of SDM [25]. The nine steps of

the SDM are a technique used whereby medical practitioners and patients cooperate in decision making. The nine steps are shown in Table 1. The third workshop was on improving the walking speed of a stroke patient. In this workshop, the subjects aimed at improving the stroke patient's walking speed, and arranged CPG information and evidence regarding the patient through the nine steps of SDM. This was conducted in a group of 5–6 members.

For the lecture on the knowledge of the CPG, the following contents were included: the definition of CPGs, process of the creation of the CPG, evaluation method of the systematic review and the risk of bias, and evaluation of the CPG approach.

The lecture on the knowledge of SDM included the definition of SDM and its difference from informed consent, the summary of the nine steps of SDM,²⁵ and the process of decision making.

Outcomes

“Education, attitudes and beliefs, interests, and perceived role in evidence-based practice (EPIC scale)” [26] were considered the primary outcomes (Table S1). The EPIC scale is a self-administered questionnaire that evaluates the degree of self-efficacy at 11 levels. As the secondary outcome, knowledge of EBP [27-30] was examined (Table S2) using a questionnaire survey composed of 15 items on attitudes toward EBP, EBP education, and EBP-associated behaviors. A Likert scale (with options “Agree,” “Neither agree nor disagree,” and “Disagree”; and from “Strongly agree” to “Strongly disagree”) was used for answers.

Sample size

The sample size was calculated on the basis of the results of the 30 participants who were primarily tested in a different pilot study, apart from this research: effect size $f = 0.14$, α error = 0.05, and power = 0.8. Note that the participants in the pilot study differed from the participants in this research.

Termination of the trial

The trial was terminated by the principal investigator and the research collaborator if the number of participants did not meet the prescribed number, a participant dropped out because of unavoidable circumstances, if the target number was not met, or if it was judged to be disadvantageous for the subjects. The termination of the study was to be informed in writing to the participants, reporting the facts known at the point of termination. Data were evaluated using intention-to-treat analysis.

Confounders

Based on prior studies, the following were taken as confounding factors: age [10,11], sex, academic history [31], years of experience [10], certification as a physio/occupational therapist [12], patients' principal disease stage in the hospital employed (acute phase, recovery phase, chronic phase) [10,11], primary disorder (orthopedic disease, developmental disorder, sports injury, spinal cord injury, post-amputation, psychiatric disorder, neuromuscular disorder, cerebrovascular disease, respiratory disease, cardiovascular disease, and other) [10,11], weekly duty hours [10,11], number of therapists at the hospital employed [10,11], number of hospital beds at the hospital employed [32], number of patients in a day [10,11] and participation in research activities [12].

Certified or specialized physiotherapist/occupational therapist is a qualification that licensed therapists can acquire after completing the prescribed training/examinations. This qualification is established by the Japanese Physical Therapy Association (JPTA).

Data on the aforementioned factors were gathered via a self-administered questionnaire, which was collected in an envelope to ensure anonymity.

Statistical analysis

A significance test of the three groups was conducted to review the intervention effect of the workshop and lecture on SDM using CPGs. For the EPIC scale, a significance test was conducted per participant, calculating the mean before and after the

intervention. For the statistical analysis, since all three groups were evaluated before and after the intervention, a two-factor variance analysis (mixed model) was adopted to conduct Holm's method in comparison with the post-hoc test. Similarly, if a significant difference in the confounding factor was recognized, the factor was considered a covariate. All statistical analyses were conducted using R (CRAN) (significance level<0.05).

Results

The flowchart for participant selection is shown in Figure 1. Forty-two participants were randomized to each group. The application period for the participants was from May 1, 2017, to April 30, 2018. There were no dropouts or untraceable participants in any group.

Patient attribution is shown in Table 2. There were no significant differences between the groups.

The results of the EPIC scale are shown in Table 3. The mean different for each group was significantly different between the CPG with SDM group, SDM group, and CPG groups (CPG with SDM group [mean±standard deviation; pre/post]: 2.4±0.9/4.4±1.7, CPG group: 3.0±1.5/3.5±2.5, SDM group: 2.6±1.2/3.3±1.8).

The result of the analysis showed that, for the question items "3. Effectively conduct an online literature search" and "Ask about needs, values, and treatment preferences," "9. Ask about needs, values, and treatment preferences," and "10. Decide on a course of action," on the EPIC scale, there were significant differences between the CPG with SDM group, SDM group, and CPG group.

In the questionnaire on EBP, for the question item "11. I learned the foundations for EBP as a part of my academic preparation," there were significant differences recognized between the CPG with SDM group and CPG group (CPG with SDM group [mean±standard deviation; pre/post]: 1.8±0.8/2.2±1.0; CPG group: 2.3±1.1/2.0±1.0) (Table 4).

Discussion

It became evident that CPG/SDM education through a workshop style targeting physiotherapists and occupational therapists increased the reports of self-efficacy in EBP as compared with a lecture style of CPG/SDM education. This indicates a new principle for increasing education on the perceptions of self-efficacy in EBP. While conducting SDM education using CPGs, there are three reasons to improve the confidence in EBP: first, the perspective on "the demand of SDM for CPG," which is stated in the definition of CPG as the significance of education in communication using SDM; second, the perspective on "the demand of CPG for SDM," which is related to the knowledge of the standard intervention method needed for conducting SDM; third, as the field of rehabilitation has scarcely assured alternatives and is high in uncertainty, not only CPG, which is the core of EBP, but also a positive outlook toward SDM provides satisfaction to physiotherapists and occupational therapists.

First, CPG is defined as "...a document that presents appropriate recommendations to assist patients and practitioners in making decisions regarding clinical practice of high importance based on a body of evidence evaluated and integrated by systematic reviews and the balance between benefits and harms [13]." Fujimoto et al. [33] state that CPGs act as a communication tool for patients and medical practitioners. To support decision-making between patients and medical practitioners as a communication tool, providing education based on CPG could lead to effective application of CPGs.

In the nine-step model [25] adopted in this study's SDM education, each step is intended to be a communication tool. Particularly, steps 3–6 are built upon identifying patients' preferences and understanding them on the basis of the benefits and risks of the evidence. Understanding this process may have led to an increase in confidence in EBP. In this study, compared with the groups that only had CPG/SDM education, the CPG with SDM group showed higher values for the three items on the EPIC scale. These included patients' preferences and understanding those steps that correspond with the points in steps 3–6 of the nine steps, thereby confirming the hypothesis.

The perspective on “the demand of CPG for SDM” relates to the knowledge of the standard intervention method needed to conduct SDM. While applying SDM, the knowledge of the applicable treatments and standard evidence for rehabilitation is indispensable in the following steps: “Presentation of treatment options” and “Informing on the benefits and risks of the options.”

In contrast, the awareness of Japanese therapists on CPGs and the evidence was reported to be lower than that of therapists in foreign countries. Fujimoto et al. [27] researched the awareness of EBP while targeting Japanese physiotherapists. Although 54.9% perceived the significance of CPGs, the usage was below 30% [27], which is less than the 61% usage in foreign countries [28].

One reason for this could be the lack of therapist education on the usage of CPGs in Japan [27]. Particularly, perspectives on applicable situations are lacking in practical education in Japan [34]. In other words, it is essential to adopt CPGs as an information source. As seen in this study, combining education on CPGs with SDM emphasizes the need for CPG perspective in SDM. This, along with the reason stated above, increased the degree of reliability of EBP.

Third, by simultaneously conducting education on CPG and SDM, therapists understood the uncertainty of rehabilitation interventions and the presence of SDM in decision making.

In Japan, the establishment of evidence is still developing in the field of rehabilitation. In an earlier study that assessed the quality of practice guidelines in physical therapy released by the Japanese Physical Therapy Association using AGREE II [Appraisal of Guidelines for Research & Evaluation], the scores were low [35]. As stated above in the item on the rigorousness of the guideline production process, such as “Is organized search method used to search the evidence,” the median was 3.0 on a 7-point Likert scale, suggesting the need for modification [35]. Again, the development of a database that considers diseases, such as cerebrovascular disease, femoral neck fracture, and spinal cord injury, is under process to establish evidence on the effectiveness of rehabilitation [36]. However, its effectiveness was not satisfactorily verified because of the lack of participating facilities, and further improvements are recommended for the quality of data [36].

Rehabilitation fields are known for the uncertainty of the treatments due to the high individuality of the goal caused by various patient-related factors, such as physical status, ability of daily living, premorbid life background, and home environment. For instance, it is challenging to execute a systematic rehabilitation program for senior citizens, who are the main target of rehabilitation, because the patients’ physical and cognitive functions are disproportionate [37, 38]. In a field of high uncertainty with many options for treatment, several therapists find it difficult to present evidence to patients [39]. Currently, incorporating education on evidence for pre/postgraduate training and communication training on the method of adopting evidence to patients are yet to be completed [34].

Above all, conducting CPG education with SDM education may convince therapists that SDM is suitable as a communication tool for decision making through their experiences in communicating and adopting to patients in actual practice. In fact, in studies targeting foreign physiotherapists, close to half favored SDM for their decision making approach in the rehabilitation field, with 28.9% implementing SDM in their clinical practices [40]. SDM is reported to be useful in involving patients in decision making by increasing patients’ self-efficacy [41,42], enhancing their understanding of the disease and its treatments [43,44], and increasing satisfaction [45,46]. For this reason, SDM is highly applicable as a communication tool in the rehabilitation field. In a study that researched the determination of a treatment plan targeting Japanese primary care physicians, 14.6% practiced SDM. This signifies the gradual acceptance of SDM as a decision-making method in Japan [47].

Similarly, knowledge of evidence along with training on communication techniques by instructing about the specific steps using SDM increased therapists’ confidence toward EBP, as they were convinced that the utilization of evidence is applicable in clinical situations.

This study has four limitations. First, since the “awareness” of EBP was adopted as a main outcome, it is difficult to determine whether it is practiced in actual clinical situations. As the EPIC scale was used as an index of the self-efficacy of EBP, since it is a self-administered outcome, it is unknown whether the behavior changed regarding EBP in the clinical situation or improved

patient outcomes. However, in the future, further research is required on the behavioral change toward EBP and improvement in patient outcomes when CPGs are used in SDM.

Second, the validity of the subject selection is questionable. There is a possibility that the understanding and awareness of SDM/CPG was high among the subjects, compared with that of other medical facilities, as this study was carried out in medical facilities where they agreed to cooperate in the research on SDM/CPG. Whether the effectiveness in teaching varied with respect to the difference in the knowledge on SDM/CPG before the intervention remains to be examined, which implies that the relationship between the target attribute and the effectiveness cannot be referred to.

Third, there is a possibility of generalization because the target was limited to Japanese medical facilities. It is reported that Japanese therapists, compared with foreign therapists, have poor knowledge of EBP/CPG [6,10-12]. In contrast to the United States and Australia, education on EBP/CPG both before and after graduating from school is still developing in Japan [47]. Thus, whether the effectiveness of education varies because of the difference in curriculum and knowledge needs to be verified.

The fourth point was the setting. The subjects of this study resulted in a high number of therapists (both physiotherapists and occupational therapists) who handle patients with CVA, as many of them attended an acute hospital, which also had outpatients in the chronic stage. In their research, Whitney et al. arranged a consensus-building method for decision making according to the certainty and risk of medical practice [48]. For treatments with low certainty, the use of SDM, which encourages the patient to share and exchange personal values to the fullest, was recommended [48]. In patients with CVA, rehabilitation treatment plans may differ owing to various elements such as the severity of the illness, premorbid lifestyle, and amount of available assistance from the family member. Moreover, different goals are set depending on the condition (acute or chronic) of the patient. It is impossible to mention the SDM skills before the intervention in this study. In the future, the communication approach must be carefully examined depending on the staging and condition of the disease.

Conclusions

EBP based on the nine steps of SDM using CPGs increased physiotherapists' and occupational therapists' confidence in EBP.

Abbreviations

AGREE II: Appraisal of Guidelines for Research & Evaluation [49]; CONSORT: Consolidated Standards of Reporting Trials; CPGs: Clinical practice guidelines; EBP: Evidence-based practice; EPIC scale: Education, attitudes and beliefs, and interest and perceived role in evidence-based practice; OT: Occupational therapist; PT: Physical therapist; SD: Standard deviation; SDM: Shared decision making; UMIN: University Hospital Medical Information Network center

Declarations

Ethics approval and consent to participate

This study was conducted with the approval of the Ever Walk Inc. Research Ethics Committee (Authorization No.: 002). Respondents were informed about the project and they provided written consent to participate.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' Contributions

SF contributed to conceptualization, methodology, design and development of the intervention, data collection, data interpretation, and drafting and revision of the manuscript, and was a major contributor to writing the manuscript. TO contributed to the development of the intervention, data collection, and revision of the manuscript. KK contributed to the statistical analyses, drafting, and revising the manuscript. TN critically revised the manuscript for important intellectual context. All authors read and approved the final manuscript.

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Tables

Table 1. The nine-steps of SDM [25]

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1. Disclosure that a decision needs to be made
 2. Formulation of equality of partners
 3. Equipoise statement
 4. Informing on the options' benefits and risks
 5. Investigation of patient's understanding and expectations
 6. Identification of preferences
 7. Negotiation
 8. Shared decision
 9. Arrangement of follow-up
-

SDM: Shared decision making

Table 2. Patient attribution

		CPG with SDM (N=42)	CPG (N=42)	SDM (N=42)
Sex (N)	Male	31	34	26
	Female	11	8	16
Age	Mean (SD)	28.1(4.2)	27.3(6.2)	28.6(5.2)
Academic history (N)	Three-year professional school graduate	8	14	10
	Four-year professional school graduate	20	19	14
	Junior college graduate	3	3	2
	College graduate	11	6	16
	Master's degree	0	0	0
	Doctoral degree	0	0	0
Years of experience	Mean (SD)	6.1(4.2)	5.4(5.7)	6.3(4.5)
License (N)	PT/OT (with national qualification)	40	41	40
	Certified PT/OT	2	1	2
	Specialized PT/OT	0	0	0
Patients' principal disease stage in the hospital employed (N)	Acute	21	19	21
	Subacute	1	0	2
	Maintenance (including outpatient)	18	16	15
	Others	2	7	4
Primary disorder (N)	Orthopedic disease	10	6	8
	Developmental disorder	0	0	0
	Sports disorder	0	0	0
	Spinal cord injury	4	0	1

	Post-amputation	0	0	0
	Psychiatric disorder	0	0	0
	Neuromuscular disorder	1	0	2
	Cerebrovascular disease	27	30	29
	Respiratory disease	0	2	2
	Cardiovascular disease	0	4	0
	Others	0	0	0
Employment status (N)	Full-time	42	42	42
	Part-time	0	0	0
Weekly duty hours	Mean (SD)	40.0(0.0)	41.8(5.3)	40.5(2.6)
Number of PT/OT at the hospital employed (N)	<3 therapists	0	0	0
	3-5 therapists	3	3	2
	6-10 therapists	2	5	5
	11-15 therapists	7	10	7
	>16 therapists	30	24	28
Number of hospital beds at the hospital employed		164.4(69.5)	134.2(81.9)	149.8(100.7)
Number of patients in a day	1-10 patients	17	24	18
	11-15 patients	25	14	23
	>16 patients	0	4	1
	None	0	0	0
Participation in research activities (N)	Yes	0	0	0
	Partially	6	9	12
	Not at all	36	33	30

SDM: Shared decision making

CPG: Clinical practice guideline

PT: Physical therapist

OT: Occupational therapist

SD: Standard deviation

*Certified or specialized physio/occupational therapist is a qualification that licensed therapists can acquire after completing the prescribed training/examinations. This qualification is established by Japanese Physical Therapy Association (JPTA)

Table 3. Results of the EPIC scale

		CPG with SDM Group (N=42)						CPG Group (N=42)				SDM Group (N=42)			
		Pre		Post		Pre		Post		Pre		Post			
No.															
EPIC scale	1	2.4 ± 1.4	4.3 ± 2.2	3.6 ± 2.1	3.7 ± 2.0	2.8 ± 1.8	3.5 ± 1.8								
	2	2.7 ± 1.1	4.1 ± 1.7	2.8 ± 1.7	2.9 ± 1.8	2.9 ± 1.4	3.0 ± 1.7								
	3	3.2 ± 1.7	4.6 ± 1.4	3.3 ± 2.0	3.8 ± 2.1	3.0 ± 1.7	3.6 ± 1.7	*†							
	4	2.6 ± 1.1	2.9 ± 1.6	2.6 ± 1.8	2.5 ± 1.8	2.6 ± 1.6	2.3 ± 1.3								
	5	2.0 ± 1.4	3.5 ± 1.7	2.6 ± 1.4	2.6 ± 1.6	2.1 ± 1.7	2.6 ± 1.5								
	6	2.0 ± 1.2	1.7 ± 1.5	1.5 ± 2.0	1.2 ± 2.0	1.5 ± 1.6	1.1 ± 1.6								
	7	1.7 ± 1.4	1.4 ± 1.3	1.1 ± 1.6	0.9 ± 1.8	1.4 ± 1.2	0.8 ± 1.3								
	8	2.0 ± 1.2	3.5 ± 1.6	3.3 ± 1.7	3.1 ± 1.8	2.6 ± 1.7	2.8 ± 1.7	*							
	9	2.3 ± 1.2	5.0 ± 2.1	4.5 ± 2.3	4.0 ± 1.6	3.6 ± 1.9	3.9 ± 1.7	*†							
	10	2.4 ± 1.2	4.4 ± 1.9	3.7 ± 2.2	3.0 ± 1.9	3.0 ± 1.8	3.4 ± 1.7	*†							
	11	2.7 ± 1.4	4.4 ± 1.7	3.5 ± 2.1	3.5 ± 2.0	2.8 ± 1.8	3.3 ± 1.8	†							
	Mean	2.4 ± 0.9	4.4 ± 1.7	3.0 ± 1.5	3.5 ± 2.0	2.6 ± 1.2	3.3 ± 1.8	*†							

SDM: Shared decision making

CPG: Clinical practice guideline

* CPG with SDM group vs. CPG group $p < 0.05$

†CPG with SDM group vs. SDM group $p < 0.05$

Mean ± standard deviation

EPIC scale: “education, attitudes and beliefs, interest, and perceived role in evidence-based practice” scale

Table 4. Evaluation of EBP

		CPG with SDM Group (N=42)						CPG Group (N=42)				SDM Group (N=42)			
		Pre		Post		Pre		Post		Pre		Post			
No.															
Evaluation of EBP	1	1.8 ± 0.8	2.2 ± 1.0	2.3 ± 1.1	2.0 ± 1.0	2.2 ± 0.9	2.2 ± 1.0	*							
	2	2.3 ± 0.8	2.1 ± 0.7	2.0 ± 0.9	1.9 ± 0.9	2.2 ± 0.8	2.1 ± 0.9								
	3	2.2 ± 0.7	2.5 ± 0.9	2.3 ± 1.0	2.3 ± 1.1	2.3 ± 1.0	2.5 ± 1.0								
	4	3.9 ± 0.7	3.8 ± 0.8	3.9 ± 0.8	3.7 ± 0.8	3.7 ± 0.7	3.8 ± 0.8								
	5	4.1 ± 0.6	4.0 ± 0.9	4.0 ± 0.8	3.9 ± 0.7	4.0 ± 0.6	4.0 ± 0.7								
	6	2.3 ± 0.7	2.3 ± 0.9	2.1 ± 0.7	2.1 ± 0.7	2.1 ± 0.7	2.3 ± 0.8								
	7	3.7 ± 0.7	3.9 ± 1.0	3.7 ± 0.7	3.9 ± 0.7	3.8 ± 0.7	3.9 ± 0.8								
	8	3.8 ± 0.6	4.0 ± 0.7	3.9 ± 0.7	4.1 ± 0.6	3.9 ± 0.6	4.0 ± 0.7								
	9	2.7 ± 0.7	2.8 ± 0.6	2.9 ± 0.7	2.9 ± 0.6	2.7 ± 0.7	2.8 ± 0.6								
	10	2.4 ± 0.8	2.4 ± 0.8	2.6 ± 0.8	2.7 ± 0.7	2.5 ± 0.8	2.4 ± 0.7								
	11	4.0 ± 0.8	3.9 ± 0.7	3.6 ± 0.7	3.9 ± 0.8	3.4 ± 0.9	3.9 ± 0.9								
	12	3.9 ± 0.6	3.9 ± 0.7	4.0 ± 0.7	3.9 ± 0.8	3.6 ± 0.8	3.9 ± 0.9								
	13	3.9 ± 0.6	3.8 ± 0.6	3.5 ± 0.7	3.7 ± 0.7	3.4 ± 0.9	3.8 ± 0.8								
	14	3.9 ± 0.9	4.0 ± 0.7	3.8 ± 0.7	4.0 ± 0.7	3.7 ± 0.9	4.0 ± 0.8								
	15	3.8 ± 0.9	3.9 ± 0.8	3.5 ± 1.0	3.9 ± 0.7	3.5 ± 0.9	3.9 ± 0.7								

SDM: Shared decision making

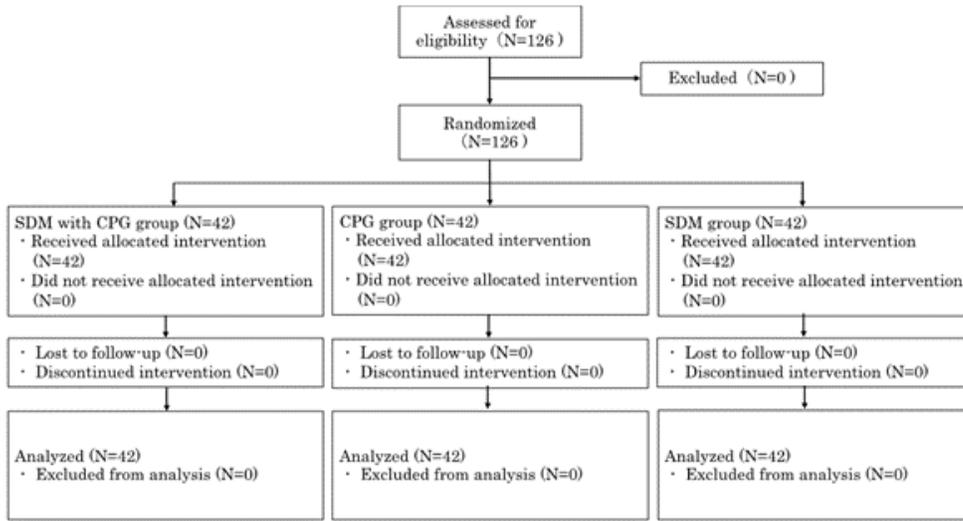
CPG: Clinical practice guideline

EBP: Evidence based practice

* CPG with SDM group vs. CPG group $p < 0.05$

Mean ± standard deviation

Figures



SDM: Shared decision making
 CPG: Clinical practice guideline

Figure 1

Flowchart

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Additionalfile1SDM.docx](#)
- [Additionalfile2SDM.docx](#)
- [Additionalfile3CONSORT.doc](#)