An assessment of the preference for the shared decision-making model and patient satisfaction in a diabetic patients'group

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Original Article

An assessment of the preference for the shared decision-making model and patient satisfaction in a diabetic patients' group

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Abstract

Purpose: The aim of this case-control study was to assess the preferences for the decision-making process and satisfaction among a group of diabetic patients.
Methods: This study was conducted using questionnaires, which were administered to 150 Japanese patients having Type 2 diabetes mellitus. Of these, 72 patients were involved in the patients' group. Multiple logistic regression analysis assessed the variables that were independently associated with being involved in the patients' group. **Results**: Involvement of patients in the patients' group was associated with enhanced preference for shared decision-making (OR 2.54 ; 95%CI. 1.07 − 6.42) but not with the Japanese version of Diabetes Treatment Satisfaction Questionnaire.
Conclusion: Promoting activities of patients' group might be one of the approaches that enhance preference for shared decision-making.
Abbreviations: DTSQ, Diabetes Treatment Satisfaction Questionnaire; Type 2 DM, Type 2 diabetes mellitus; OR, Odds ratio.

Key words

DM, diabetic patients' group, DTSQ, Patient participation group, Shared decision-making

Introduction

The aim of this study was to assess the preferences for the decision-making process and patient satisfaction among a group of diabetic patients.

Patients' participation in the clinical process is important for improving clinical outcomes. The number of self-help organizations and patients' groups has been considerably increasing over time. For example, 2500 self-help organizations and patients' groups worldwide were known to exist in 2005, compared with 800 in 1990. However their potential has yet to be fully developed, recognized and utilized.[1)]

Among some models of decision-making process, "shared decision-making model" is one of the important ones. It has four key characteristics, which are described as follows: (1) There are at least two participants i.e., both the physician and the patient are involved in the decision-making process; (2) both parties share information with each other; (3) both parties take steps to build a consensus about the preferred treatment; and (4) an agreement is reached between the two regarding the treatment to be implement.[2)]

It was previously reported that parents of children with acute otitis media in the shared decision-making group were more satisfied than those in the paternalistic model group.[3)] However until now there have been few studies on the factors responsible for enhanced preference for shared-decision making process.

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Table1. Structure, process and outcome of diabetes care process and activities of the patients' group

STRUCTURE	PROCESS	OUTCOME
	Diabetes Care Process	
Patients: DM	Treatment: Insulin or oral drug or diet	Objective: HbA1c
Physician: Diabetologists	Education: Self-care, patient education	Subjective: Patient satisfaction
	Decision-making process	
	Activities of the Patients' group	
Patients and physician	Group activities	Subjective: Partnership

*DM: diabetes mellitus.

The subject of this study was not the actual decision making process that patients had experienced but their preferences for decision-making process. We postulated that involvement of the patients in the patients' group would be associated with: (1) enhanced preference for shared decision-making in the decision-making process and (2) enhanced patient satisfaction.

Table 1 shows the summary of these hypotheses. The clinical process is divided into three phase, structure, process and outcome.[4] Firstly, the diabetes care process is presented. The structure consists of a physician and a patient; the process comprises such as treatment regimen, patient education, self-help and decision-making process; and the outcome consists of objective one such as HbA1c level and subjective one such as patient satisfaction. Secondly, the activities of the patients' group are presented. The structure consists of patients, physicians and nurses et al. in the present patients' group; the process consists of activities of the patients' group, event et al.; the outcome consists of patient's psychological factor such as preference for partnership.

Patients and Methods

The study was approved by the Medical Ethics Advisory Committee of Kanazawa University Faculty of Medicine, and School of Health Sciences.

This was a case-control study in which self-report questionnaires were used to compare the adjustment of diabetic patients involved in the patients' group with that of the control group. Written informed consent was obtained from all participating patients at the time of their initial attendance. The questionnaires were completed in the out-patient clinic when the patients arrived for their routine appointment between March and August 2006. Treatments, which were considered in the study and were confirmed through patients' self-report, included insulin injection regimen, oral medications and dietary control.

Table 2 shows the flow diagram describing patients' participation. Initially, 475 patients with Type 2 diabetes (Type 2 DM) attending one of the three institutes (Practice A, B or C) were considered for the study. Attended patients answered basic questionnaires about age, sex, duration of diabetes and about the involvement of the patients' group and then the two questionnaires. All the questionnaires except for age, was adapted multiple choice method. Initial sample of 164 patients were reduced by excluding defects of the

Table 2. Patients' participation flow diagram

	Patients' group		Control group	
475 patients with Type2 diabetes				
	Practice A	160	Practice A	174
	Practice B	0	Practice B	91
	Practice C	1	Practice C	49
	Total	161	Total	314
150 were registered.				
	Practice A	71	Practice A	41
	Practice B	0	Practice B	28
	Practice C	1	Practice C	9
	Total	72	Total	78
135 patients fulfilled Q1*		65		70
104 patients fulfilled Q2**		55		49

* Q1: the questionnaire on decision-making preferences,
**Q2: Japanese version of Diabetes Treatment Satisfaction Questionnaire.

basic questionnaires. 150 patients were registered for the study.

The first hypothesis to be tested was that the subjects belonging to the patients' group would have enhanced preference for shared decision-making process compared with those belonging to the control group. In this article the definition of the shared decision-making was as follows; patients' expectation that a physician and a patient make decisions together. This hypothesis was tested by using a self-administered questionnaire on decision-making preferences (Q1).

The second hypothesis was that the subjects belonging to the patients' group would be more satisfied with their care compared with those in the control group. This was tested by a self administered Japanese version of "Diabetes Treatment Satisfaction Questionnaire (DTSQ). As to internal consistency of this questionnaire Cronbach's alpha was 0.9 which was very satisfactory.[5)]

One hundred thirty-six patients filled Q1. The original edition of Q1 was written in English,[6)] which after being translated into Japanese was called the "translated Japanese questionnaire". Two native English speakers then re-translated this Japanese questionnaire into English and called it as the "translated English questionnaires." Finally, three people-a third native English speaker, a diabetologist and an epidemiologist-examined the accuracy of the "translated Japanese questionnaire" by comparing the three questionnaires.

One hundred four patients filled Japanese version of DTSQ.

Statistical analysis

Multiple logistic regression analysis was conducted using a panel of possible variables associated with the patients' group. The panel included age of the patient, sex (female = 1 and male = 0), duration of illness (five years and above = 3, one year and above = 2 and less than one year = 1), treatment (insulin = 3, oral medication = 2 and diet = 1) and Q1 (for each item, yes = 1 and no = 0). Multicollinearity and the linearity assumption for logistic regression equation were assessed stepwise. Age was expressed as mean ± SD.

All analyses were performed using the JMP software version 6.03 for Windows statistical package (SAS Institute., Cary, North Carolina, USA)

Results

Characteristics of the responding patients are shown in Table 3. There were no significant differences in age and gender between the patients involved in the patients' group and the control group.

Table 3. Characteristics of the participating patients

	Patients' group	Control group
N	72	78
Male/female	45/27	53/22
Age*	66.26 ± 7.63	64.51 ± 9.90
Duration of diabetes		
5 years and above	62	48
1year and above	8	21
less than 1year	2	6
defect	0	3
Treatment		
insulin	41	18
oral drug	23	33
diet	4	18
defect	4	9

*Age in expressed as mean±SD, not significant by Welch test

Table 4. Comparison between the patients' group and the control group in decision-making preferences

Item	Model	Decision-making process	Patients' group	Control group
1	Paternalistic	Physician makes decisions	0	2
2	Physician-as-agent	Physician makes decisions after considering patient input	19	21
3	Shared decision-making	Physician and patient make decisions together	33	28
4	Informed decision-making	Patient makes decisions after considering physician input	12	9
5	Consumerism	Patient makes decisions	1	5
6	Did not know	I do not know.	0	5
7	No answer given	I prefer not to answer at this time.	0	1
	Total		65	71

Table 5. Parameters associated with involvement in the patients' group identified through multiple logistic regressions

	Estimate	SE	P-value	OR(CI)
Age	0.076	0.029	0.008	1.08 (1.02−1.14)
Sex	−0.002	0.444	0.996	0.99 (0.42−2.40)
Duration	0.377	0.461	0.413	1.46 (0.60−3.79)
Treatment	1.325	0.342	0.000	3.76 (1.99−7.70)
Preference for shared decision-making	0.934	0.455	0.040	2.54 (1.07−6.42)

SE：Standard Error, OR：Odd's ratio, CI：Confidential Interval

Table 6. Results of Japanese version of DTSQ*: Number of patients who fulfilled, their mean and standard deviation and Cronbach's alpha

Item	Patients' group /Control group	Patients' group /Control group	Cronbach's alpha
1 How satisfied are you with your current treatment?	69/66	4.39±1.11 /4.33±1.36	0.90
4 How convenient have you been finding your treatment to be recently?	66/70	4.11±1.43 /3.94±1.48	0.80
5 How flexible have you been finding your treatment to be recently?	62/64	3.94±1.39 /3.97±1.41	0.82
6 How satisfied are you with your understanding of your diabetes?	64/68	4.05±1.13 /4.00±1.33	0.81
7 Would you recommend this form of treatment to someone else with your kind of diabetes?	61/55	4.18±1.37 /4.29±1.42	0.82
8 How satisfied would you be to continue with your present form of treatment?	65/65	4.51±1.15 /4.26±1.27	0.79

*DTSQ: diabetes treatment satisfaction questionnaire.

Testing the hypotheses

The first hypothesis was regarding the preferences for decision-making process. The questionnaire as shown in Table 4 consisted of seven items (including five models).

The predictive equation was calculated with the following logistic regression parameters. $P = 1 + 1/(1 + e^{-x})$ = where $x = -9.26 + 0.076$ (age) $+ 1.32$ (treatment) $+ 0.93$ (item3 of Q1). As shown in Table 5, multiple logistic regression analysis identified the following variables as independent factors associated with involvement in the patients' group: age (OR 1.08; 95%CI 1.02−1.14), treatment (OR 3.76; 95%CI 1.99−7.70), shared decision-making (OR 2.54; 95%CI 1.07−6.42).

The second hypothesis was regarding the patient satisfaction showing in Table 6. The sum of the six items (items 2 and 3, which were concerned with perceived frequency of hyper- and hypoglycemia, were excluded) were 25.1±6.0 in the patients' group and 25.0±6.5 (M±SD) in the control group. No significant difference was found between the two groups by multiple logistic regression analysis ($p = 0.6$). No significant interaction was observed between the variables.

Discussion

This study mainly showed the association between patients' involvement in the patients' group and their preference for shared decision-making in the decision-making process.

The patients' group activities were as follows: annual meetings, annual membership, newsletter, planning and doing of events (in which the patients' group and their physicians and co-workers spend a whole day together and have activities like lectures on cooking and diet, sharing each patient's experiences and patients' communication with their physicians because they don't have enough time for communication in daily out-patient clinic.);

negotiations with the hospital they attended and the autonomy they belonged to, and affiliation with the Japanese Association for Diabetes Education and Care. This association was established in 1961 with the purpose of spreading current knowledge regarding diabetes care, educating the patients and their families, preventing diabetes and undertaking research activities for health promotion.[7)]

We can not apply our results to other patients' groups with a great diversity in the world. However their activities may have their effects on their clinical processes including decision-making process. Then this study could contribute towards demonstrating the effectiveness of patients' group, which might help in promoting their activities.

In practice information exchange between a physician and a patient can be classified based on three models: paternalistic, consumerism and shared. Of these models, the shared model is characterized by its interactional nature between the physician and the patient.[8] In this respect, the literature states that communication and partnership are the strongest predictors of patient satisfaction.[8)] To promote partnership between the physician and the patient, a mutual effort is required. From the physician's viewpoint, patient-centered approach is an example of such an effort, while from the patient's viewpoint, patient participation is such an example. Thus patient satisfaction is one of the outcomes of patient-centered approach. When patients act jointly, in conjunction with their physician, they constitute a "Patient Participation Group" in England.[9)] There are many patients' organizations throughout the world with various elements and professional endorsement are necessary to make them effective.[10)]

The subjects in our study comprises a patients' group consisting of diabetic patients, who were receiving outpatient treatment from Practice A (except for one patient who did not belong to the patients' group but belonged to Japanese Association for Diabetes Education and Care). Practice A is a non-profit hospital in Kanazawa, Ishikawa-prefecture, Japan. The patients' group in this study had two characteristics. First, the involved patients received treatment only from Practice A. Second, the physicians and the associated team of specialist nurse educators, dieticians, and pharmacists treating them supported and joined their group activities. Our results may have been influenced by such specific circumstances, because such a self-help group that uses professionals as active leaders may not truly be called self-help group.[11)]

The results of this study also showed that there was no association between patients' involvement in the patients' group and their DTSQ (Japanese version). The DTSQ was originally designed to evaluate changes in patient satisfaction with changes in treatment regimen. On its evaluation, by excluding the two items which provides on indication of perceived frequency of hyperglycemia and hypoglycemia, six of the eight items are summed to produce a measure of satisfaction with treatment. And it is reported that Cronbach's alpha coefficient for the satisfaction with treatments scale for patients with tablet-treated diabetes was 0.79 for a six item scale. However the present version is also appropriate for comparing the measurements of clinical outcomes.[12)]

The association between patient satisfaction and health outcome has been studied previously. In patients with Type 2 DM positive correlations were found between the General Practice Assessment Survey Questionnaire and levels of HbA1c.[13)] It has been reported that in diabetic patients' patient-doctor communication and their satisfaction were related.[14)] Our results showed that although there was an association between involvement in the patients' group and preference towards shared decision-making, there was no association between involvement in the patients' group and patient satisfaction. A short-term intervention (6 months) has been shown to enhance quality of care including patient's satisfactions for those with Type 2 DM.[15)] In contrast Carry M Renders et al. reported the results of a quality improvement program for patients with Type 2 DM lasting 42 months, which showed no beneficial effect on the clinical outcomes.[16)]

Our study had some limitations. First, since this study design was a case-control study, a causal relationship between being involved in the

patients' group and preference for shared decision-making and the factors of the activities of the patient's group attributed to its effect could not be elucidated. Second, the sample size of our study was small because the patient population was limited to diabetic patients, who attended only one hospital and low response rate of the questionnaires, which may be caused by the fact that they completed them during their waiting period at the clinic. Further work is warranted in comparison with other patients' groups.

Conclusion

In conclusion patients with Type 2 DM who were involved in the patients' group showed an enhanced preference for shared decision-making between the physician and the patient. However this involvement was not accompanied by a similar effect on patient satisfaction.

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糖尿病患者会における意思決定の共有過程の選好と患者満足度の評価

岩瀬　俊郎

要　　旨

目的：本症例対照研究の目的は、糖尿病患者会における意思決定の共有過程の選好と患者満足度を評価することである。方法：研究は、日本人の２型糖尿病患者150人を対象に質問表を用いて行った。うち、72人は患者会に入会していた。多重ロシスティック回帰分析を用いて、患者会に入会していることと独立した変数を分析した。結果：患者会への入会は意思決定の共有過程の選択と有意に関連していた (OR 2.54; 95%CI. 1.07-6.42) が、日本語版糖尿病治療満足度質問票とは関連していなかった。結論：患者会活動の促進は意思決定の共有過程への選好の強化につながる可能性がある。