

BMJ Open Does it matter whether physicians' recommendations are given early or late in the decision-making process? An experimental study among patients with schizophrenia

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ABSTRACT

Objectives: Physicians' recommendations are seen as an essential component in many models of medical decision-making, including shared decision-making. It is, however, unclear at what time in the decision-making process the recommendation is best given, not to adversely influence patient preferences. Within the present study we wanted to evaluate at what time in the decision-making process a doctor's recommendation is best given, not to adversely influence patient preferences.

Design: We performed an experimental study involving hypothetical decisions vignettes and compared the influence of 3 conditions (no advice, early advice, late advice) on patients' decision-making.

Setting: N=21 psychiatric hospitals in Germany.

Participants: N=208 inpatients suffering from schizophrenia.

Primary and secondary outcome measures: The main outcome was the number of patients choosing the option in each experimental condition that had been less preferable to most patients during pretests. Additional outcome measures were patient satisfaction and reactance.

Results: Patients in the 'late advice' condition more often (n=49) accepted an advice that was against their preferences compared with the other conditions (n=36 for 'early advice', p=0.024).

Conclusions: Although giving advice is an important part of every doctor's daily practice and is seen as an essential element of shared decision-making, hitherto there has been little empirical evidence relating to the influence of physicians' advice on patients' decision-making behaviour. With our study we could show that the point in time an advice is given by a physician does have an influence on patients' decisional behaviour even if the mechanism of this effect is not yet understood.

BACKGROUND

It is an integral part doctors' work to give advice or recommendations to patients about

Strengths and limitations of this study

- This is the first study investigating the influence of the timing of a physician's advice on the patient's decision.
- We used an experimental design involving real patients with diagnosis of schizophrenia.
- Patients might behave differently in real-life situations when interacting with their physician 'in vivo' instead of answering a hypothetical scenario, as in our experiment.
- Patients with different diagnoses might react differently to doctors' advice. Our results might therefore not be transferrable to all other diagnostic groups.

therapies to choose from. Doctors' advice is known to have a major impact on a patient's decision-making¹ and can even lead to patient decisions that are against their own preferences.²

These facts are of special interest in light of consumer-oriented models of medical decision-making, such as shared decision-making (SDM) that are called for by medical experts and patient organisations,^{3,4} especially in decisions in which more than one medically reasonable treatment option exists. Evidence suggests that patients will be more satisfied and more adherent when they are involved in decision-making, since treatment decisions then become more oriented towards patients' individual preferences and values.⁵⁻⁸

Thus, within the framework of SDM and especially for preference-sensitive decisions, the quality of a decision to a great part depends on whether or not the decision reflects the patient's preferences.⁹ While in the 'independent choice model', physicians are expected to withhold their recommendations to avoid biasing the patient, giving a



recommendation is seen as an appropriate component of SDM.^{9 10} If successive steps of SDM are discussed, the component of ‘physician recommendation’ always follows the patients’ building of treatment preferences,^{9 11} in order to avoid physicians’ recommendations thwarting the development of these patient preferences (anchoring bias¹²).

It is thus anticipated that the extent to which a patient is diverted from his or her own preferences by the advice of a physician might depend on the stage in the decision-making process. If the advice is given too early, this might hinder the patient from formulating his or her own preferences. Thus, psychological studies of non-medical decision-making have shown participants to be more influenced by early advice, and to make worse decisions when they have received an advice early in the decision process.¹³ In medicine, however, no study has hitherto addressed the influence of the timing of a physician’s advice on the patient’s decision.

METHODS

We performed an experimental study involving hypothetical decisions vignettes.

Participants

Patients with an International Classification of Diseases (ICD)-10 diagnosis of schizophrenia, schizoaffective disorder or schizophreniform disorder (ICD-10 F20, F25, F23), who were currently inpatients but ready to be discharged were recruited.

Inclusion criteria

- ▶ Male and female patients with an ICD-10 diagnosis of schizophrenia, schizoaffective disorder or schizophreniform disorder (ICD-10 F20, F25, F23);
- ▶ Current symptoms have remitted to an extent that the patient can be discharged within the next week;
- ▶ Age between 18 and 65 years;
- ▶ Written informed consent.

Exclusion criteria

- ▶ Mental retardation (IQ<75);
- ▶ Poor German language skills.

Patients eligible for the study were recruited at 22 psychiatric hospitals throughout Germany within a larger project on patient adherence.¹⁴ These patients were identified by their psychiatrists as the patients fulfilling inclusion criteria and being among the next to be discharged. Patients were then contacted by the researcher who obtained written informed consent.

We chose patients with schizophrenia as the study population for several reasons. First, the issue of patient autonomy is an important one in the treatment of schizophrenia.¹⁵ Second, antipsychotic drug choice is a preference-sensitive decision which regularly takes place during inpatient stays,¹⁶ so the participants were familiar with the subject of the experiment.

Study design

We intended to investigate what influence the time at which a physician’s recommendation is given had on the patient’s decision. Therefore, we used an experimental design incorporating a hypothetical decision scenario (a choice between two fictitious antipsychotic agents). The experiment was carried out by a trained experimenter in one-on-one sessions.

Procedure

Patients were presented with a questionnaire describing a hypothetical decision scenario. In this scenario patients were requested to choose between two different fictitious antipsychotics (‘antipsychotic A’ and ‘antipsychotic B’) available for the treatment of schizophrenia. These drugs were described briefly, and differed only with respect to their side effects, not with respect to their efficacy.

Experimental material was prepared for all participants and then shuffled (into random order). Material for every single patient was then consecutively taken from the top of this (pseudorandomised) deck of materials. Every patient was assigned to one of three experimental conditions (see [figure 1](#)):

1. *No recommendation condition*: After receiving the information about the two antipsychotics, patients were requested to make a choice of which of the two drugs they would prefer to take. Patients in this condition did not receive a recommendation from their physician.
2. *Early recommendation condition*: Patients simultaneously received the description of the two antipsychotics and the advice of their physician concerning which antipsychotic he or she would recommend to them. Thus, patients in this condition received their physician’s advice at an early moment in the decision-making process.
3. *Late recommendation condition*: Patients first received the description of the two different antipsychotics. Subsequently they were asked to form a preference for one of the two antipsychotics and to indicate which of the two drugs they would choose for treatment. After making this choice, they received their physician’s recommendation. After receiving their physician’s advice, patients were requested to make a final decision as to which drug they would choose for treatment. Thus, patients in this condition received their physician’s advice at a late moment in the decision-making process.

After making their (final) treatment decision, patients in all conditions were requested to answer additional questions about their satisfaction with the treatment chosen, their estimated adherence with the treatment, etc.

As the experiment was added to an interview study about the treatment patients had received at the hospitals¹⁴ sociodemographic data were available.

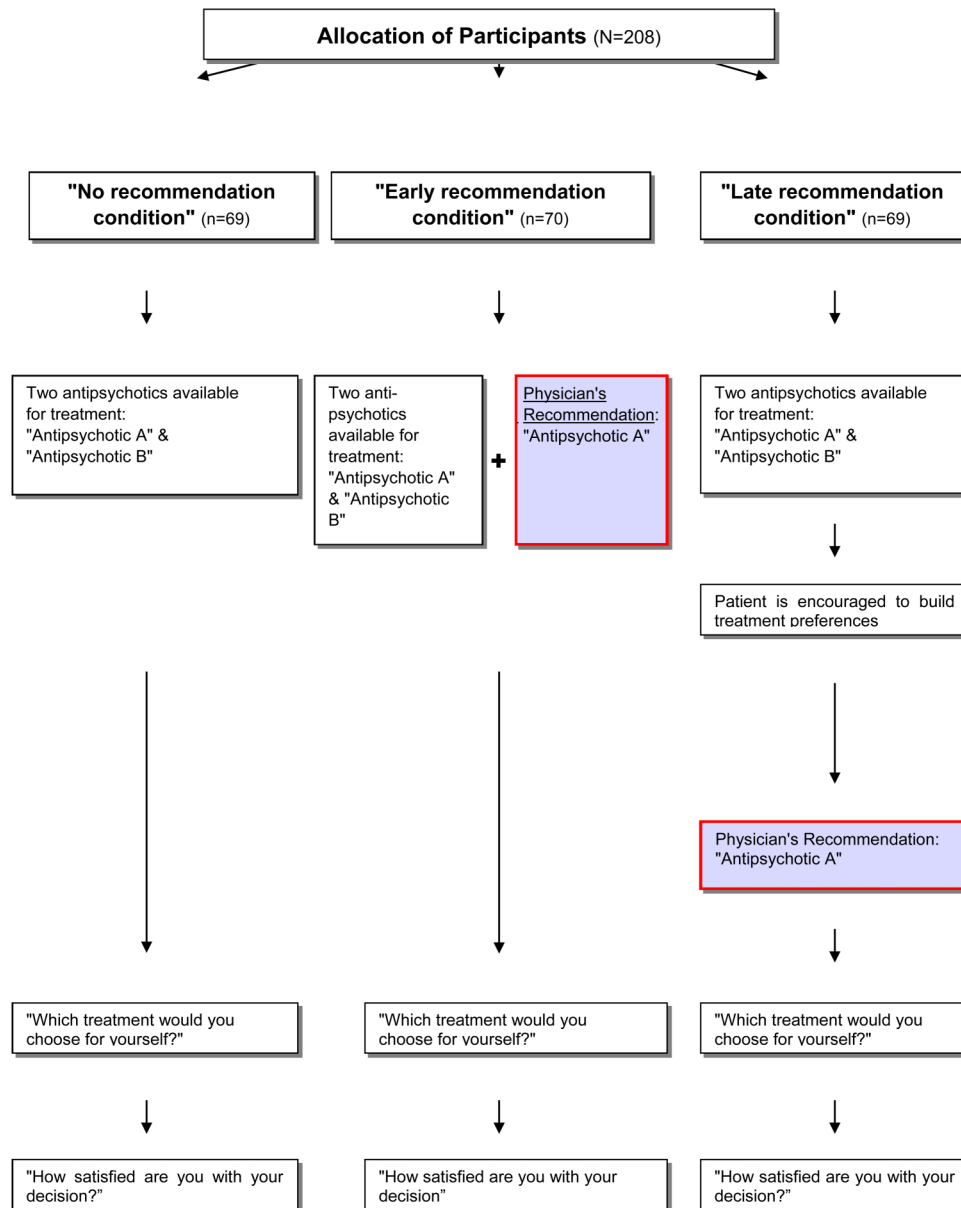


Figure 1 Overview of the study procedure.

Physician's recommendation

The physician's recommendation was given in written form supplied by the experimenter (Your physician recommends you antipsychotic A). As in earlier studies on physicians' advice^{1 2} we measured whether physicians' advice pulls patients away from a preferred treatment option. Therefore, patients received an advice that was contrary to their own preferences. In the 'early recommendation condition', however, this raised the methodological problem that the advice would be given before the patient has formed a preference. This, however, implied that it would not be possible to give all patients an advice which is contrary to their preferences, since their preferences are not yet known at this stage.

In order to solve this methodological problem, the experimental material was constructed so that one

treatment option (antipsychotic A) was clearly less often preferred by patients compared with the other treatment option (antipsychotic B), so that the majority of patients would prefer 'antipsychotic B'. This allowed us to offer advice that was contrary to the preferences of most patients, namely the advice to take 'antipsychotic A'. All patients in the 'early recommendation condition' and the 'late recommendation condition' therefore received a physicians' recommendation that was in favour of the less often preferred 'antipsychotic A' (below referred to as 'less preferable treatment option').

To make sure that 'antipsychotic A' was in fact less preferable than 'antipsychotic B', pretests with N=15 patients suffering from schizophrenia were conducted in advance to test the preferences of patients regarding the fictitious drugs. Here a ratio of 20:80 (antipsychotic A:B)



was aimed at; that is, only 20% of patients should prefer 'antipsychotic A' while 80% should prefer 'antipsychotic B'. Both antipsychotics were presented as equal with respect to objective parameters such as efficacy or safety; they differed only with respect to subjective parameters such as unpleasantness of side effects (ie, tiredness vs dry mouth).

Note. In our manuscript we do not differentiate between the terms 'advice' and 'recommendation'. We use, as most studies do, both terms synonymously.¹⁷

Measures

Main outcome measure

The main outcome measure was the number (percentage) of patients choosing the less preferable treatment option (antipsychotic A) in each experimental condition.

Additional outcome measures

- ▶ Patients' satisfaction with the chosen treatment: Mendel *et al*² found that accepting physician's advice contrary to own preferences led patients to be less satisfied with the treatment decision. To test whether the time when a physician's recommendation is given has impact on satisfaction; patients' satisfaction was measured on a seven-point rating scale (How satisfied are you with your decision? How satisfied are you with the chosen treatment?, How helpful was your doctor's recommendation?).
- ▶ Impact of physician's recommendation on patient's adherence: to study whether the time when a physician's recommendation is given may also have an impact on patients' adherence; participating patients were also requested to estimate their future adherence to the chosen treatment (seven-point rating scale: 'How compliant would you be with the medication you chose?').
- ▶ Patients' reactance: to test whether the time when a physician's recommendation is given has impact whether patients feel limited in their freedom of choice, patient's feeling of reactance was measured. Therefore, patients were asked questions such as 'How much do you feel limited in your freedom of choice by your physician's recommendation?'

(Patients' reactance was measured only in the 'early recommendation condition' and 'late recommendation condition'.)

Analysis

Sociodemographic and illness-related variables (eg, patients' age, gender, education, duration of illness) were compared across experimental groups using χ^2 analysis and analyses of variance. Additionally, all these variables were described as frequencies and percentages or as means and SDs.

To test whether the number (percentage) of patients choosing the less preferable treatment option (antipsychotic A) differs across the three conditions (no recommendation condition, early recommendation condition and late recommendation condition) we used χ^2 tests, including post hoc comparisons.

Patients' satisfaction with the final treatment decision and patients' estimated future adherence to the chosen treatment were compared across experimental conditions by analyses of variance. Additionally, to test whether patients in the 'early recommendation condition' differ from patients in the 'late recommendation condition' concerning perceived limitation of freedom of choice a t-test was carried out. The level of statistical significance was set at $p=0.05$ and all tests were two-tailed.

RESULTS

Two hundred and fifteen patients were approached for the study, 213 agreed to participate and $N=208$ patients participated in our experiment and provided full data. There were 89 women and 119 men, the mean age was 39.8 years ($SD=12.1$), mean duration of illness was 11.8 years ($SD=9.0$) and the mean number of hospitalisations was 6.4 ($SD=6.0$). One hundred and sixty-six patients had a diagnosis of schizophrenia, 40 a schizoaffective disorder and 2 a schizophreniform disorder. At the time of the study patients were on average moderately ill with a mean Clinical Global Impression (CGI) score of 4.0 ($SD=1.2$). There were no apparent differences between patients allocated to the three experimental scenarios with regard to these baseline variables (see [table 1](#)).

Table 1 Baseline characteristics

	No recommendation N=69	Early recommendation N=70	Late recommendation N=69
Age	39.7 (12.6)	40.7 (11.9)	39.0 (12.0)
Gender (female, %)	31 (45%)	29 (41%)	29 (42%)
Hospitalisations	5.9 (5.6)	6.6 (6.1)	6.8 (6.4)
CGI score	3.9 (1.2)	3.9 (1.1)	4.1 (1.2)
Voluntary admission	56 (81%)	53 (76%)	51 (74%)
Trust in physician (seven-point scale ranging from 'no trust at all' to 'big trust')	5.9 (1.2)	5.7 (1.5)	5.8 (1.3)

Differences between the decision scenarios

The number of patients choosing the less preferable treatment option (drug A) was significantly different between the three scenarios ($\chi^2=12.2$, $p=0.002$) with patients in the late recommendation condition choosing drug A more often than patients in the two other conditions. If only the early and late recommendation conditions were compared, patients in the late recommendation condition significantly more often chose the less preferable treatment option ($n=49$) than patients in the early recommendation condition ($n=36$, $\chi^2=5.6$, $p=0.024$).

Here, 22 patients (32%) in the late recommendation condition had initially chosen drug A and 47 (68%) drug B. Thus, after having received the (late) advice, 27 patients (57%) changed their choice.

Regarding the other outcome measures (eg, satisfaction with decision, reactance) there were no significant differences between the three experimental conditions with only a statistical trend for patients feeling more limited in their freedom of choice in the late recommendation condition (table 2).

Finally, patients who changed their drug choice in the late recommendation scenario after having received the recommendation had a tendency to feel more limited in their freedom of choice ($M=3.9$ vs $M=3.0$, $t=-1.8$, $p=0.07$) but found their doctor's advice more helpful ($M=5.7$ vs $M=4.6$, $t=-2.3$, $p=0.02$) than patients who did not change their drug choice.

DISCUSSION

The main finding of our study was that the time at which an advice is given has an influence on the patients' choice of treatment. Patients in the 'early recommendation condition' chose the less preferable treatment (antipsychotic A) less often than patients in the 'late recommendation condition'.

This finding contradicts assumptions that if physicians want to arrive at shared decisions they should withhold their advice until patients have formed their preferences. In addition, it is also contrary to evidence from psychological experiments.¹³ Thus, Sniezek *et al*¹³ have shown for a non-medical experiment that early cues (advice) lead to poorer decision accuracy.

Our results are therefore surprising as the possibility for patients to form their own preferences and receive their physicians' recommendation afterwards (late recommendation) did not lead to patients staying more often with their preferences. On the contrary, patients in the late recommendation conditions were more likely to be pulled away from their preferred choice when receiving their doctor's advice.

Possible explanations for these unexpected results

Regarding the impact of the time an advice is given, we are faced with paucity of research. What can be said is that, obviously, having the time to form preferences had little impact on patients sticking to these preferences. The high impact of the late advice is surprising but we can only speculate as to the underlying causes.

On the one hand, the procedure of the decision scenario in the late recommendation condition (first getting the possibility to form preferences and then nevertheless getting an advice) might have added more authority to the doctor's advice compared with the early authority condition. This might be of special importance since, contrary to the experiments carried out by Sniezek,¹³ where participants had to choose between correct or incorrect answers to neutral information, the patients in our experiment were familiar with the content of the experiment (antipsychotic treatment) and had a real doctor-patient relationship with the person from whom the advice was to come. Participants were therefore personally affected and potentially biased

Table 2 Differences between decision scenarios

	No recommendation N=69	Early recommendation N=70	Late recommendation N=69	Test
Number (%) of patients choosing the less preferable 'drug A'	29 (42%)	36 (51%)	49 (71%)	$\chi^2=12.2$ $p=0.002$
How satisfied are you with your decision? (mean, SD)	5.0 (1.9)	5.4 (1.6)	5.0 (1.7)	$F=1.29$ $p=0.28$
How difficult was it for you to make this decision?	5.0 (2.0)	5.4 (1.9)	4.7 (2.2)	$F=1.71$ $p=0.18$
How confident are you that you made the right decision?	5.1 (1.9)	5.4 (1.7)	4.9 (1.9)	$F=1.65$ $p=0.20$
How compliant would you be with the medication you chose?	5.6 (1.8)	5.8 (1.8)	5.8 (1.7)	$F=0.37$ $p=0.69$
How much do you feel limited in your freedom of choice by your physician's recommendation?	/	2.8 (1.8)	3.4 (2.0)	$T=1.75$ $p=0.08$
How helpful was your doctor's recommendation?	/	5.0 (2.0)	5.0 (2.0)	$T=-0.13$ $p=0.90$



by social desirability or role expectations (not to contradict the doctor).

On the other hand, we originally had expected some kind of anchor effect¹⁸ in the early advice condition and ended up with the opposite. Potentially, our finding might be a result of an order effect that is that 'people have a tendency to remember and be more influenced by options or facts that are presented first or last'.¹² In our case it would be a 'recency effect' with the patients' forming of preferences being over-ruled by the physician's advice information coming latest.

Implications

Physicians must be aware that giving an advice powerfully influences their patients' decision-making,¹ probably in unexpected ways. In addition, patients' reaction might be dependent from the setting and diagnosis.¹³ The most important implication in our view is that the proposed steps for SDM^{11 17} imply that doctors should withhold their recommendation until patients have formed their preferences. Our results now suggest that a late recommendation potentially sweeps a whole SDM process in just a few seconds if the advice is contrary to the patients' preferences. From a clinical point of view, 'physicians must work to refine and express their own voices',¹⁹ to avoid unwanted consequences of giving a recommendation as far as possible.

However, there should also be more (experimental) research on the influence of doctors' advice on the decision-making processes, to better understand the complexity of the issue.

Limitations

Our study has several limitations. First, we had inconsistencies between patients' choice in the pretest and in the final experiment (no recommendation condition). Here, a larger sample of pretest participants would have made the results more stable. Second, patients might behave differently in real-life situations when interacting with their physician 'in vivo' instead of answering a hypothetical scenario, as in our experiment. We have tried to overcome this limitation by designing the vignette as realistic as possible and by studying patients instead of healthy volunteers.

Allocation of patients to the arms of the study was not strictly random, but rather a pseudorandomised division of the three types of experimental material. Patients completed the material with the help of a researcher which involves the risk of researcher bias. In addition, patients had no choice about receiving the physicians' recommendation. Nevertheless, as in real physician-patient interactions, physicians often give recommendations without being asked explicitly by their patients. Moreover, in routine consultations the recommendation can be given at any time (not only in the beginning or end) and the recommendation is often the result of a discussion between the patient and the doctor.

Finally, there is evidence that patients with different diagnoses might react differently to doctors' advice.² Our results might therefore not be transferrable to all other diagnostic groups.

CONCLUSIONS

Although giving advice is an important part of every doctor's daily practice and is seen as an essential element of SDM,⁹ hitherto there has been little empirical evidence relating to the influence of physicians' advice on patients' decision-making behaviour.¹ With our study we could show that the point in time an advice is given by a physician does have an influence on patients' decisional behaviour even if the mechanism of this effect is not yet understood.

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Contributors JH, WK and RM have designed the study; JH and RM wrote the study protocol. JH managed the data collection and analysed the data. JH drafted the manuscript. JH, WK and RM interpreted the data, wrote the manuscript and have given final approval.

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Competing interests JH and WK have received lecture honoraria and research support from Janssen, Lilly and Otsuka.

Ethics approval The study was approved by the Institutional Review Board (Ethikkommission der Technischen Universität München).

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