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Patients' Perception of Their Involvement in Shared Treatment Decision Making: Key Factors in the Treatment of Inflammatory Bowel Disease

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Abstract

Objectives: This study aims to characterize the relationships between the quality of the information given by the physician, the involvement of the patient in shared decision making (SDM), and outcomes in terms of satisfaction and anxiety pertaining to the treatment of inflammatory bowel disease (IBD).

Methods: A Web survey was conducted among 200 Canadian patients affected with IBD. The theoretical model of SDM was adjusted using path analysis. SAS software was used for all statistical analyses.

Results: The quality of the knowledge transfer between the physician and the patient is significantly associated with the components of SDM: information comprehension, patient involvement and decision certainty about the chosen treatment. In return, patient involvement in SDM is significantly associated with higher satisfaction and, as a result, lower anxiety as regards treatment selection.

Conclusions: This study demonstrates the importance of involving patients in shared treatment decision making in the context of IBD.

Practice Implications: Understanding shared decision making may motivate patients to be more active in understanding the relevant information for treatment selection, as it is related to their level of satisfaction, anxiety and adherence to treatment. This relationship should encourage physicians to promote shared decision making.

Keywords: Shared decision making, patient involvement, patient satisfaction, patient anxiety, knowledge transfer, inflammatory bowel disease.

1. Introduction

Patient involvement in shared treatment decision making has been associated with increased patient satisfaction, improved medication adherence and better health outcomes in primary care settings [1]. These outcomes are especially relevant in the context of chronic illness, where several treatment adjustments and/or modifications occur over time, within a long-term relationship between the patient and his/her medical specialist [2-4]. The complexity of shared treatment decision making increases the difficulty of process assessment. Furthermore, no single metric reflecting informed treatment decision making exists [5]. In this regard, most attempts to evaluate informed treatment decision making have assessed knowledge, screening intention, and behaviour. However, Johansson [6] has reported that patient involvement in treatment decisions has rarely been discussed. This process could have a significant impact on a patient's future psychological well-being and health outcomes.

The present study was aimed at investigating how elements of patient involvement in shared decision making (SDM) may influence both satisfaction with treatment or anxiety concerning the medical experience, resulting in a model of SDM for the specific context of inflammatory bowel disease (IBD) patients.

1.1 Information transfer between the physician and the patient

Shared treatment decision making relies on the quality of the information given by the physician to the patient. According to Brédart, Bouleuc, and Dolbeault [7], a medical interview is successful if communicative behaviours follow both the patient's agenda with his symptoms, preferences and concerns and the doctor's agenda with details of disease and treatment options. This exchange consists of "information seeking" and

“information giving” from both the physician and the patient. Previous studies have shown that a lack of information may actually interfere with a successful choice made by the patient [8]. For instance, patients with irritable bowel syndrome primarily expected comprehensive information, references to sources of additional information, answers to their questions, an attentive ear, and information about studies on disease and medication from their health care providers [9]. Information provided by physicians requires an initial clarification of the patients’ needs for information or values [10, 11]. If the information provided by the physician meets the patient's need for information, a relationship of trust will be fostered with the treating physician. Specifically, when physicians fulfill the information needs of their patients in terms of treatment options and management of medications, confidence in the treating physician will strengthen and promote patient’s involvement in decisions to increase adherence to treatment [3, 12-15]. Patients with IBD are likely to experience several treatment changes in accordance with their disease progression and the emergence of new treatments, which requires an ongoing transfer of information throughout the patient’s life. The need for a high quality information transfer could be even more important in these conditions than for diseases such as cancer, which have been the principal focus of current research on this matter. Accordingly, the present study proposes that the quality of the information transfer influences patient involvement in SDM (first hypothesis - H1; see Table 1).

1.2 Shared decision-making process

The most-often used definition of SDM was proposed by Charles et al.[16] and is characterized by the following elements: “(1) that at least two participants – physician and patient – be involved; (2) that both parties share information; (3) that both parties take steps to build a consensus about the preferred treatment; and (4) that an agreement is reached on the treatment to implement”. Consistent with this definition and current literature, this study suggests that SDM starts with a high quality information transfer between the doctor and the patient, is followed by an understanding of this information by the patient, and then by his involvement in treatment selection and his certainty over this choice. Patients’ understanding of the information given by their physicians is a crucial first step in SDM. Patients who receive information are more likely to report

optimal satisfaction with pain medication than those who do not, and patients who participate in SDM are also more likely to report optimal satisfaction with treatment and display a greater average decrease in pain score [1]. A number of studies have shown that patients prefer situations where physicians present to them a range of treatment options, as they want to understand the reasons for which they may need a specific medication as opposed to another [17, 18]. Thus, the quality of the physician-patient information transfer is linked to information comprehension by patients as well as their involvement in SDM. Furthermore, such studies have identified low levels of information understanding as a factor involved in treatment adherence: patients whose physicians prescribe a medication without explaining the reasons behind his/her choice or side-effects were significantly associated with a low adherence during the first year of treatment. Thus, physicians must be aware of patient's preferences towards the administration and dosing of their medications in order to help guide their treatment decisions [19].

Perceived levels of certainty over the chosen treatment option influences levels of involvement by the patients. Ramfelt and Lützén [20] actually suggest that compliance with participation was characterized by open dialogue between the physician and the patient. However, compliance without participation has been associated with participants' feelings of uncertainty and distress, and of being rushed into the subject of decisions, without having time to properly reflect on the information provided or the opportunity to influence the treatment and care process. Carter, Lobo, and Travis [21] propose that individuals with IBD strongly believe that they need sufficient information in order to make a rational personal choice about treatment options. According to McCormack et al. [5], patients with greater decisional uncertainty are more likely to report greater levels of involvement in the treatment decision-making process as well as a greater satisfaction with their level of involvement. One explanation for these findings may be that patients who are less certain about their decision display a higher level of questioning about their values and preferences, and have more extensive conversations with their clinician and, ultimately, are actually more actively involved in the decision and more satisfied with their level of involvement. Health care providers must help patients to understand the potential risks versus benefits of different treatment options, as patients who are more

engaged in their healthcare decision making are more likely to experience confidence in, and satisfaction with treatment decisions [22]. Considering the interconnection between information comprehension, patient involvement and decision certainty, three components of SDM, the present study proposes that the first component influences the second which, in turn, influences the third (H2; Table 1).

1.3 Satisfaction

Patients' satisfaction levels reflect the extent to which the patients' healthcare needs, expectations and preferences are met. Janisse [23] has indicated that physicians whose patients were the most satisfied described a need to listen to their patients sufficiently for them to feel understood by the patients, and for the patients to then feel understood in return, such that the explanations sought by the patients can generate mutual trust and understanding. King and Hoppe [24] have reported that patient satisfaction is strongly associated with the communication behaviors that occur during the physician-patient interactions. By drawing out patients with active listening responses, physicians gather information to understand the patients' needs for their current meeting. Subsequently, physicians had to actively provide information to meet their patients' needs and overcome barriers to patient understanding, such as the use of a "biomedical language" or healthcare literacy. Tallman et al. [17] have also observed that physicians with outstanding satisfaction with their patients pertaining to their exchange of information, communicate with their patients by using active listening responses during patient "storytelling". Asking probing questions, especially regarding patients' concerns, give patients the opportunity to express their fears and concerns, and give physicians the opportunity to demonstrate their understanding by responding empathically [25]. Higher physician empathy has been linked to involvement in SDM and lower decision regret [26]. Siegel, et al. [27] have reported that patients were more satisfied when they participated in SDM and dissatisfied patients were skeptical of the medical decision. Thus, the present study proposes the hypothesis that the three components of SDM may individually influence patient satisfaction (H3; Table 1).

1.4 Level of anxiety

Patient involvement in SDM regarding their treatment is related to their perceived level of anxiety. According to Pincus, et al. [28], physicians who provide clear explanations and information improve their patients' emotional reassurance, which in turn increases patient enablement. A systematic review that reported a strong correlation between physician empathy and patient satisfaction also revealed that physician empathy decreases patient anxiety and distress [29]. Thus, patients who receive emotional reassurance from their attending physician or who perceive them as empathetic are less anxious and more satisfied [28, 29]. As such, the present study proposes that both the components of SDM (H4) and satisfaction (H5) influence the level of anxiety experienced by the patient (Table 1).

The objective of this study is to evaluate the impact of the quality of the information transferred by physicians to patients on the SDM process. This study also aims to investigate the influence of SDM on patient satisfaction and anxiety level. Based on the literature, a theoretical model of SDM for treatment selection in the context of IBD has been schematized (Figure 1). The model is based on 5 hypotheses derived from the literature review presented above (Table 1). This model hypothesizes that the quality of information transfer by physicians, including their empathy, may influence each SDM component: information comprehension, patient involvement and decision certainty. The model also hypothesizes that information comprehension influences patient involvement, which in turn influences decision certainty. Another hypothesis is that each SDM component may influence both satisfaction and anxiety. Lastly, satisfaction may also influence the level of anxiety. A path analysis was performed to simultaneously test the causal relationship between the model's variables.

(Insert Figure 1 about here)

(Insert Table 1 about here)

2. Methods

2.1 Data source and recruitment

The present study is part of a larger Canadian project in inflammatory bowel diseases (IBD), a chronic illness that includes both Ulcerative Colitis (UC) and Crohn's disease

(CD). A web survey was selected as a mean to reach as many patients as possible, across Canada. Confidentiality in healthcare networks forbade the authors to directly reach all 233,000 patients who are currently being estimated to be suffering from IBD. Consequently, the Web survey was broadcasted through the website of the Crohn's and Colitis Canada (CCC), an association that counts 933 members affected by IBD. The web survey was available through the CCC website for 5 months. To ensure we obtained a sufficiently large final sample size, five reminders were posted on the website and in a newsletter as well as on social media (Facebook, Twitter and LinkedIn) via existing CCC platforms. The final sample included 210 adult participants, representing a response rate of 22.5%, which is within the range previously reported in similar studies [30-32]. From the 210 participants who completed the Web questionnaire, a few respondents did not answer at least one of the questions. The statistical analysis was performed exclusively on a complete set of data for the analyzed variables, which yielded a total of 200 participants.

2.2 Variables

The Web survey was based on similar previously published Web surveys [33-35]. The quality of the transfer of information between the physician and the patient was evaluated as follows: (i) One item measuring patients' level of satisfaction with the information provided by their IBD specialist concerning their last test results. (ii) SDM was evaluated using three items assessing the patients' understanding of the information provided, their level of confidence as to whether the medication prescribed was adequate, and their involvement in the decision with regards to which treatment to pursue. These 3 items were consistent with previous literature on dimensions of shared treatment decision making [16, 36]. (iii) The level of overall satisfaction was measured using one item pertaining to the patients' satisfaction with the suggested treatment process. This item is consistent with current literature on treatment satisfaction among IBD patients [21, 30, 37, 38]. (iv) The patients' anxiety level was measured using one item pertaining to the level of anxiety at the end of the appointment to discuss test results and treatment selection with the IBD specialist. This item was also consistent with current literature on this subject [30, 39].

Likert scales were used in which respondents indicated their agreement or disagreement with a given statement [40]. This type of scale is preferred when measuring complex attitudes or individuals' perception, as this was the case in the present study. According to Preston and Colman [41], the majority of questionnaires are using scales of 5 or 7. Even-numbered scales eliminate the respondents' tendency to choose the middle answer, known as central tendency [42]. Therefore, the questionnaire used a scale of 6.

The Web questionnaire was first "pre-tested" by 14 IBD treatment experts, followed by "pre-testing" in 17 patients in a gastroenterology clinic in order to verify their understanding of each question. Minor changes in the wording were subsequently made to complete the final questionnaire.

2.3 Analysis

Path analysis was performed using structural equation modelling (SEM). All of the arrows presented in Figure 1 were tested simultaneously and a path coefficient was determined by SEM. In Figure 1, each variable is given a unique number and each path coefficient tested by SEM is defined as follows: the first subscript stands for direct variable and the second subscript for indirect variable. The CALIS procedure of the SAS/STAT software's capabilities was used with full information maximum likelihood (FIML) as the method of estimation. The usual goodness of fit indices in structural equation modelling were used to determine the model's fit [43]. The strength of the predictor variables was considered statistically significant at p values of less than 0.05.

3. Results

3.1 Response rate and sample characteristics

The statistical study sample included 200 participants with IBD, of whom the demographic profile is described in Table 2. The majority of the respondents were female (81.0%). The participants were proportionally represented in the three age groups, namely, 18-34 (40.3%), 35-44 (32.7 %), and 45 and over (27.0%). More than half of the respondents were in a conjugal relationship (60.8%). In terms of education, the majority of the respondents held a diploma in vocational or technical training (41.3%) or a university degree (42.9%), while a minority had a high school diploma or less (15.8%).

Most of the respondents considered their health status to be "good or very good" (41.5%) or "okay" (36.5%), and fewer reported their condition to be "very bad or bad" (22.0%). The questions used from the Web survey along with their statistical analysis are presented in Table 3. Each question is associated with a variable presented in Figure 1.

(Insert Table 2 about here)

(Insert Table 3 about here)

3.2 Path analysis

The theoretical model presented in Figure 1 was adjusted using SAS software and the results are presented below. The correlation coefficients between the variables of the model are also presented in Table 4. All correlations are positively significant, meaning strong correlations between all of the model's variables.

(Insert Table 4 about here)

The path analysis results for the theoretical model presented in Figure 1 demonstrated that the model does not fit very well with the data, $\chi^2(3, N = 200) = 7.71, p = 0.053$; AGFI = 0.91; CFI = 0.99; SRMR = 0.02; RMSEA = 0.09. The fit indices for good fit to the model have the following thresholds: AGFI > 0.95; CFI > 0.95; SRMR < 0.08; RMSEA < 0.07 along with low χ^2 relative to degrees of freedom and with an insignificant p value ($p > 0.05$) [43]. The path analysis results provided significant p values and revealed that two of the four fit indices did not meet the good fit criteria. Thus, the model is not clearly validated by the data. The three components of H4—the coefficient between information comprehension and level of anxiety (β_{41}), between patient involvement and level of anxiety (β_{42}) and between decision certainty and level of anxiety (β_{43})—were all insignificant. The modification indices (MI) indicated that the goodness of fit to the model would be improved by removing all three coefficients. The model was thus tested again without the relationship between the three SDM components and anxiety level (H4). The results showed that this adjustment to the model resulted in a better fit with the data $\chi^2(6, N = 200) = 9.20, p = 0.16$; AGFI = 0.95; CFI = 1.00; SRMR = 0.02; RMSEA =

0.05. The resulting SDM model for treatment selection in the context of IBD is presented in Figure 2.

(Insert figure 2 about here)

The quality of the information transfer between the physician and the patient leads to increased participation in SDM processes, as revealed by significant coefficients between the quality of information transfer and information comprehension (0.58, $p < .0001$), patient involvement (0.45, $p < .0001$) and decision certainty (0.50, $p < .0001$). H1 is thus validated by the data. Concerning the process of SDM, comprehension of the information provided by the physician did not significantly influence the patients' likelihood of experiencing a high level of involvement (0.14, $p = .056$), but the patients' involvement significantly influenced their confidence in the chosen treatment (0.30, $p < .0001$). Thus, only the second part of H2 is significantly validated. High participation in the SDM process positively influences the likelihood of the patient experiencing a high level of satisfaction with his or her chosen treatment (H3) as information comprehension (0.12, $p = 0.002$), patient involvement (0.35, $p < .0001$), and decision certainty (0.56, $p < .0001$) are all significantly related to satisfaction. As mentioned above, no direct effects were found between SDM components and anxiety, but all of them had an indirect effect on anxiety. Thus, patient involvement in SDM decreases the level of anxiety, but this influence follows, and is a result of, an increase in patient's satisfaction. Lastly, a high level of satisfaction with the suggested treatment process positively influences the likelihood that a patient will experience a low level of anxiety (0.48, $p < .0001$) with his or her chosen treatment (H5).

4. Discussion and Conclusion

4.1 Discussion

The results of this study confirm that promoting patient involvement in SDM is an endeavour that is worth the investment in time and resources. The quality of the information transfer between the physician and the patient was significantly associated with each factor of the SDM process, thereby validating H1 of our model. Patients must be informed to make complex decisions, especially in cases where treatment options are

multiple and with varying risks and benefits. The patients need to understand the myriad of treatment options in order to discuss those options with their physician based on their particular concerns, fears and situation. The quality of the information provided, as well as the bond of trust that is created from listening to the patients' concerns and providing them with adequate information to reassure them about the treatment selection, is particularly crucial in the context of chronic illness [44]. SDM must be perceived as a collaborative process. The long-term relationship built between patients with chronic conditions and their physicians involves multiple treatment selection options, following the patient's signs and symptoms, and the emergence of new treatment options. This long-term interaction fosters a patient's need to seek information and to participate in medical decisions [45]. This result is consistent with previous findings [46, 47].

It was initially suggested that there might be a linear relationship among the three components of SDM. The correlation between information comprehension and patient involvement was not significant. It is plausible that a correlation does exist between these components, but that it was not strong enough to be significant in the present study. This could mean that quality of information transfer has a direct effect on patient involvement that is not strongly mediated by information comprehension. Thus, quality of information transfer leads to higher patient involvement, which significantly increases decision certainty and satisfaction. Furthermore, quality of information transfer is essential to information comprehension, which in turn leads to higher satisfaction. In the latter case, information comprehension is strictly rational and related to the quality of the information transfer. As reported by Lesnovska, et al. [12], the acquisition of knowledge is a complex cognitive process that is related to patient health behavior and involves learning, reasoning and communication. Shared decision making includes cognitive limitations and emotional factors mainly in a context where decisions involve technical information, health risks and probabilities that are difficult concepts for inexperienced patients to understand. Decisions about which treatment to pursue are based on more than rational information comprehension about benefits, risks and uncertainty because decisions must align with patient values and preferences [48]. When faced with various treatment options, a patient's application of his or her values and principles can be disrupted by emotions or cognitive interference. Thus, information comprehension is

rational, but decision-making involves values, preferences and emotions, which explains the non-significant correlation between information comprehension and patient involvement; they both lead significantly and individually to patient satisfaction.

The patient's involvement in the treatment selection led to higher confidence in the selected treatment option (second part of H2). 'The extent to which the patient's behaviour matches agreed recommendations from the prescriber' along with mutual agreement on treatment decisions refer to adherence [49, 50]. Thus, involvement in treatment selection leads to higher decision certainty about the treatment, which fosters patient's adherence. This finding is consistent with the results of Ramfelt and Lützén [20], according to which compliance without active involvement in treatment selection was related to a decrease in adherence to treatment. Adherence to treatment is particularly important in a chronic illness such as IBD, in which an interruption in treatment can lead to an irreversible deterioration of the patient's condition.

SDM was significantly associated with patients' satisfaction with their current treatment selection. Each SDM component was significantly correlated with satisfaction, thereby validating H3. Joosten, et al. [45] reported that, in the context of chronic disease where interactions with the physician are extended over time, SDM is often associated with satisfaction, adherence and well-being. Similarly, it has recently been reported that patients with IBD preferred to be involved in SDM and to be well informed. Their participation in SDM was associated with higher satisfaction [27]. The relationships between SDM and the patients' anxiety concerning their current treatment (H4) was not significant, but the three components of SDM have an indirect correlation with anxiety, this correlation being a result of higher satisfaction with the suggested treatment process. This result is consistent with prior studies suggesting that involvement in SDM may decrease anxiety [51, 52] but, in our proposed model, this decrease in anxiety is observed following an increase in satisfaction. Overall satisfaction leads to a decrease in the level of anxiety concerning the chosen treatment (validating H5). This is consistent with literature on treatment satisfaction among IBD patients [21, 35]. A systematic review has revealed that providing education and explanations, referred to in the literature as cognitive reassurance, result in higher satisfaction and enablement and lower anxiety

[28]. Derksen, et al. [29] found that physician empathy increases patient satisfaction which, in turn, decreases patient anxiety and distress.

The present study tested and adjusted an SDM model that results in a linear process through which the quality of information transfer results in a patient's involvement in SDM, which increases the patient's overall satisfaction and subsequently decreases his or her anxiety over the chosen treatment. In addition, a patient's involvement in treatment selection leads to confidence in the treatment that is selected. Lastly, patients' comprehension of information transferred by the physician and confidence in the chosen treatment decreased anxiety by increasing satisfaction. All correlations of our proposed model are significantly validated by path analysis and are consistent with the literature on IBD.

The present study may present some limitations that could potentially limit the interpretation of its results. First, the extent to which IBD is representative of other chronic illnesses. Second, the "universality" of Canada's healthcare system may not be representative of all systems. Third, constraints related to confidentiality pertaining to medical files led the research team to reach patients through a national charity organization with a significant network of patients with IBD. Respondents from this subgroup may present some bias since those who join an association and/or who respond to a web questionnaire represent a more motivated and involved group. Fourth, none of the three SDM components were correlated with anxiety as initially suggested in the theoretical model. The manner in which the participants were selected may have contributed to the rejection of H4. This hypothesis should be tested again in a new investigation to confirm the indirect correlation between patient involvement in SDM and decreased anxiety. Lastly, in this study, only one item was used per model variable. Future research should validate the model with more than one question per construct. This would also serve to validate or invalidate the absence of any correlation between information comprehension and patient involvement. The non-significance observed here may be due to the absence of correlation, or may be a result of insufficient power to detect the specific correlation. Although future research should also be conducted in order to further characterize, confirm and validate the present findings, such as in a larger

and more diversified sample of chronic illnesses, the present study delineates the importance of patient perceptions in IBD as part of the management of their illness.

4.2 Conclusion

The present study aimed to investigate how elements pertaining to the participation of patients in SDM may influence both satisfaction with their treatment and the level of anxiety pertaining to their medical experience, in the context of a specific family of chronic illness, namely IBD. The quality of the information transfer between the physician and the chronic patient does influence the involvement of patients in the SDM process. This involvement in SDM is significantly related to patients' satisfaction which, in turn, is related to their level of anxiety over their current treatment, which indirectly correlates SDM to anxiety.

4.3 Practice implications

The present results could be useful for both patients and physicians. Patients' awareness of these may encourage them to be more attentive and to ask their physicians more questions about the knowledge transfer process for the selection of treatment. This important first step may enhance their involvement in the SDM regarding their options for treatment and, in turn, increase their satisfaction and decrease their level of anxiety. Similarly, physicians' knowledge of patients' perception towards the treatment decision-making process could increase their awareness of the importance of exchange of information in fostering the patients' perception of their own understanding and own involvement, thereby influencing their satisfaction with their medical care. With the heightened interest to personalization of medicine, clinical guidelines could benefit from a closer look at issues pertaining to patients' involvement in the decision-making process related to the management of their health condition.

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Declaration of interest

None.

Informed consent and patient details

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

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Table 1. The 5 hypotheses that constitute the theoretical SDM model and tested with path analysis

No	Hypothesis
H1	The quality of the information transfer between the physician and the IBD patient will significantly influence the likelihood of patients' involvement in the shared treatment decision-making process ($\beta_{21} = \beta_{31} = \beta_{41} \neq 0$).
H2	Comprehension of the information provided by the physician will significantly influence the likelihood of experiencing a high level of involvement in the treatment selection which, in turn, will significantly influence the likelihood of experiencing confidence in the chosen treatment among patients suffering from IBD ($\beta_{32} = \beta_{43} \neq 0$).
H3	The participation in shared decision-making process will significantly influence the likelihood of experiencing a high level of satisfaction concerning the suggested treatment process in patients suffering from IBD ($\beta_{52} = \beta_{53} = \beta_{54} \neq 0$).
H4	The participation in shared decision-making process will significantly influence the likelihood of experiencing a low level of anxiety concerning the suggested treatment process in patients suffering from IBD ($\beta_{62} = \beta_{63} = \beta_{64} \neq 0$).
H5	The level of patient satisfaction concerning the suggested treatment process will significantly influence the likelihood of experiencing a low level of anxiety concerning the suggested treatment process among patients suffering from IBD ($\beta_{65} \neq 0$).

Table 2. Sociodemographic profile of the participants (n=200)

Characteristics		n	%
Sex	Women	162	81.0
	Men	38	19.0
Age	18 - 34	79	40.3
	35 - 44	64	32.7
	45 and older	53	27.0
Civil status	Married or in common-law partner	121	60.8
	Single or divorced/separated/widowed	78	39.2
Education	High school diploma or less	31	15.8
	Collegial or professional degree	81	41.3
	University degree	84	42.9
General health status	Very bad or bad	44	22.0
	Okay	73	36.5
	Good or very good	83	41.5

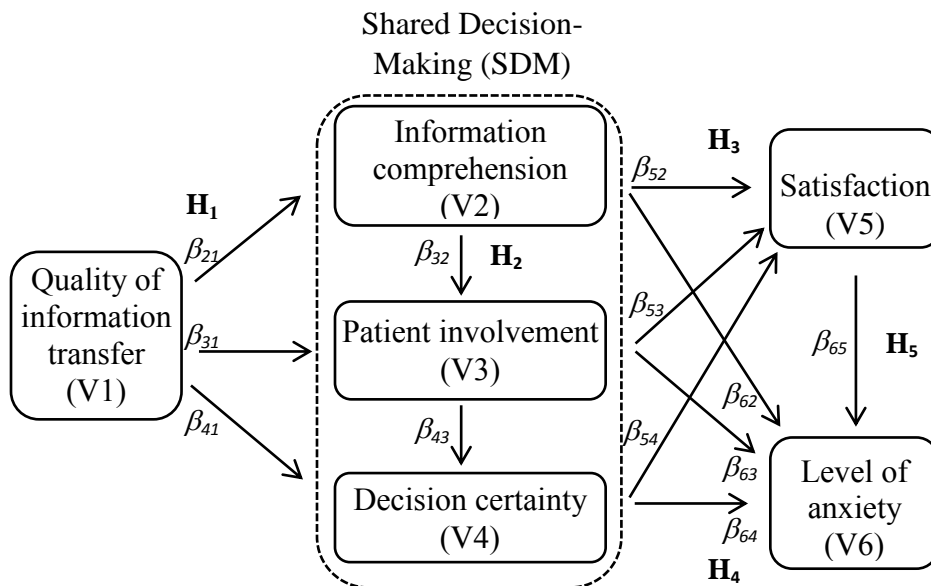


Figure 1. Theoretical model of the shared decision-making process for treatment selection in the context of inflammatory bowel disease. The model and its five hypotheses are based on a literature review.

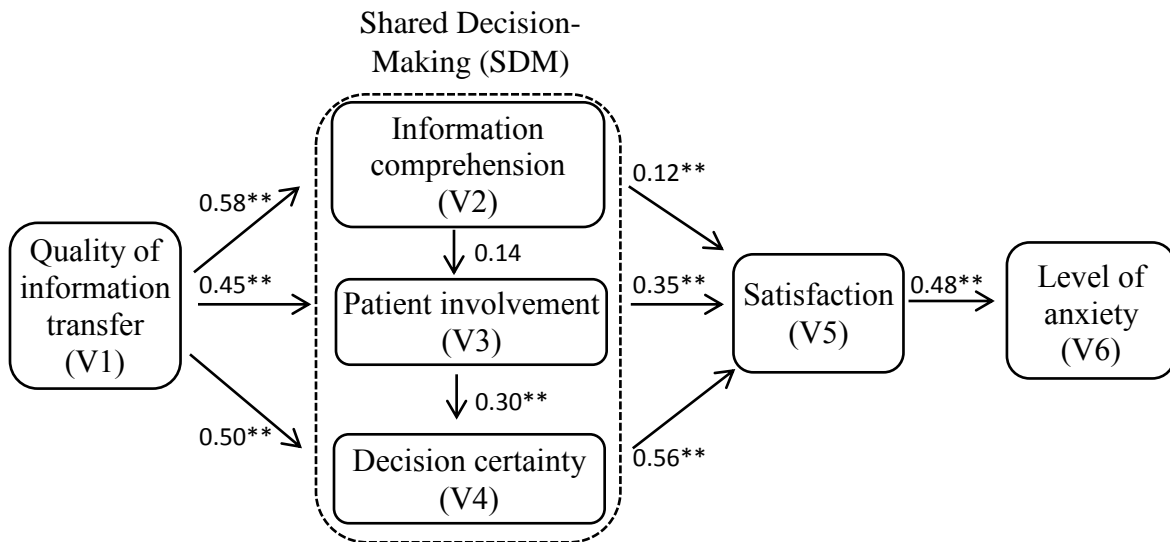


Figure 2. Path analysis of the hypothesis model ($\chi^2(6, N = 200) = 9.20, p = 0.16$) of the shared decision-making process for treatment selection in the context of inflammatory bowel disease. The values above and below the arrows are the standardized beta weights for the direct effects * $p < 0.05$; ** $p < 0.01$.

Table 3. Questions used from the web survey and their statistical analysis.

		Answers to the questions used for the path analysis					
		1	2	3	4	5	6
Your overall level of satisfaction concerning the information provided by the IBD specialist about your test results?	Frequency	7	15	19	53	61	45
	%	3.5	7.5	9.5	26.5	30.5	22.5
	Mean	4.41					
	STD deviation	1.33					
Your level of understanding of the test results?	Frequency	3	7	16	32	70	72
	%	1.5	3.5	8.0	16.0	35.0	36.0
	Mean	4.88					
	STD deviation	1.18					
Your level of implication in the decision with regards to which treatment to pursue?	Frequency	34	24	22	32	42	46
	%	17.0	12.0	11.0	16.0	21.0	23.0
	Mean	3.81					
	STD deviation	1.80					
Your level of satisfaction with the suggested treatment process?	Frequency	16	14	27	40	61	42
	%	8.0	7.0	13.5	20.0	30.5	21.0
	Mean	4.21					
	STD deviation	1.50					
Your level of confidence that the prescribed medication was adequate?	Frequency	24	12	34	29	65	36
	%	12.0	6.0	17.0	14.5	32.5	18.0
	Mean	4.04					
	STD deviation	1.60					
Your level of preoccupation (stress) following this appointment?	Frequency	16	32	36	38	45	33
	%	8.0	16.0	18.0	19.0	22.5	16.5
	Mean	3.82					
	STD deviation	1.55					

Table 4. Pearson correlation coefficients of the variables involved in the shared decision-making process for treatment selection in the context of inflammatory bowel disease

	Quality of information transfer (V1)	Information comprehension (V2)	Patient involvement (V3)	Decision certainty (V4)	Satisfaction (V5)	Level of anxiety (V6)
Quality of information transfer	-					
Information comprehension	0.570 <.0001	-				
Patient involvement	0.521 <.0001	0.388 <.0001	-			
Decision certainty	0.653 <.0001	0.438 <.0001	0.563 <.0001	-		
Satisfaction	0.672 <.0001	0.502 <.0001	0.716 <.0001	0.806 <.0001	-	
Level of anxiety	0.362 <.0001	0.214 .0024	0.370 <.0001	0.428 <.0001	0.483 <.0001	-