



Medical Decision Making

Analyzing the effects of shared decision-making, empathy and team interaction on patient satisfaction and treatment acceptance in medical rehabilitation using a structural equation modeling approach

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ABSTRACT

Objectives: The aims of the study are: (1) To develop and test a theory-based model for the predictive power of “Shared decision making (SDM)”, “Empathy” and “Team interaction” for “Patient satisfaction” and “Treatment acceptance”. (2) To identify mediating effects of “Compliance” and “Satisfaction with decision”.

Methods: Within a multi-center cross-sectional study (11 inpatient rehabilitation clinics at different indication fields), the model was evaluated in descriptive and structure analytical terms based on survey data of $N = 402$ inpatients.

Results: The structural equation model proved to exhibit an appropriate data fit. A high proportion of variance of “Patient satisfaction” (61%) and “Treatment acceptance” (67%) can be predicted by “SDM”, “Empathy”, “Satisfaction with decision” and “Team interaction”. While no mediating effects were found for the two subcomponents of “Compliance” (“Patient cooperation”, “Adherence”), “Satisfaction with decision” showed a full mediation for “Treatment acceptance” and a partial mediation for “Patient satisfaction”.

Conclusion: “Team interaction” should be considered as an important predictor of process and patient-centered outcome characteristics.

Practice implications: The current findings can be used to derive measures as well as interventions to optimize the organization of participatory care within teams in order to strengthen patient centeredness and to ensure a high quality of care.

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1. Introduction

The concept of “Shared decision-making (SDM)” provides a promising approach for strengthening patient centeredness in medical rehabilitation [1,2]. SDM is mostly described as a form of physician–patient interaction, which is characterized by an interactive decision-making process conducted on an equal footing [3–6]. A joint determination of treatment goals and the selection of treatment measures, can lead to enhanced patient satisfaction with the treatment, an improved collaboration, a more effective transfer to everyday life, and ultimately better treatment outcomes [1,7]. To implement SDM in practice, a sustainable physician–patient relationship and specific communication structures are

required, which encourage the patient to express his expectations, goals and preferences. Patients show a high need for information [8–10] and an increasing desire to be involved into medical decision-making processes [11,12]. The level of desire for participation differs between patients [12,13], can change throughout the course of illness [14,15] and is dependent on the desire for information [1,13,16]. It was shown that a good physician–patient relationship may be advantageous not only for subjectively perceived psychosocial criteria (e.g., quality of life, depression, anxiety), but also objective medical criteria (e.g., symptom alleviation, lowering of blood pressure and blood sugar [2,17–20,63]). Besides physiological outcome parameters (e.g., reduced symptoms, improved functional capacity and pain control), positive effects of SDM have also been mentioned for mental health outcomes [1,13,18,64]. Study findings show an increase in patients’ satisfaction, compliance and treatment acceptance [7], an increase in transfer to everyday life [1,13] and an improvement in quality of life and medication adherence [65,66], as well as a reduction of decision conflicts, anxiety [6] and

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medication costs [65]. Additionally, improvements in physician–patient communication, risk perception, and patient knowledge have been reported [15].

The degree of physicians' empathy, which supports a better exchange of information between physician and patient, proved to be a further important component of a trustful relationship between physician and patient [43]. Positive effects of physician empathy include an increase in compliance, patient satisfaction, diagnostic precision [22,23] and self-efficacy [24]. Furthermore, it is associated with a reduction in emotional distress [24], and an increase in professional satisfaction and a reduction of stress on the part of the physicians [23,25,26].

Additionally, a good collaboration of the various health care professionals within a team is also seen as a key factor for an effective and efficient health care [27–29]. Team interaction is associated with an improvement in treatment outcomes [30–32] and a reduction of morbidity [33], as well as an increase in patient satisfaction [30,31], employee satisfaction [27] and a reduction of health economic costs [31,32]. Nevertheless “Team interaction” is not systematically regarded in existing models addressing outcome related models of clinical communication and interaction structures and processes. To fill this gap, the “Model of Integrated Patient Centeredness (MIPC)” was developed to meet the necessity of consistently integrating the aspect of team interaction into the common model of Shared Decision Making [34,35]. It is assumed that improved collaboration within a team can help to avoid non-integrated processes in the treatment process. Furthermore, joint decisions between physicians, treatment team and patients can be better accepted by all involved and implemented more consistently into practice [34–36].

Thus, the main aim of the study was to empirically define and test a theory based model and consequently create the basis for a model-oriented investigation of important theory-oriented relationships.

1.1. Research questions and hypotheses

The goal of this work was to examine the described model using structural analysis with regard to empirically (a) assess model variables and (b) estimate the associations and predictive relationships. To this aim, the following hypotheses were formulated regarding (a) the data fit of the complete model and (b) the construct relationships:

Hypothesis I. The data information of the variables can be adequately modeled by a theory-based structural equation model.

Hypothesis II. The constructs “SDM”, “Empathy” and “Team interaction” have a predictive value for the constructs “Patient satisfaction” and “Treatment acceptance”.

Hypothesis III. “Team interaction” is an independent predictor of “Patient satisfaction” and “Treatment acceptance”.

Hypothesis IV. The effects of the independent variables “SDM”, “Team interaction” and “Empathy” on the dependent variables “Patient satisfaction” and “Treatment acceptance” are mediated by the variables “Compliance” and “Satisfaction with decision”.

2. Methods

2.1. Measures

2.1.1. 9-item Shared Decision Making Questionnaire (SDM-Q-9)

To measure the extent to which patients are included in decision-making processes, the “9-item Shared Decision Making Questionnaire (SDM-Q-9)” was used [38]. The questionnaire can be

applied across different diseases and is oriented toward the nine treatment steps of SDM [5,38,39]. The items are rated on a 6-point Likert scale from 0 (“completely disagree”) to 5 (“completely agree”). High values correspond to a high shared decision; e.g., “My doctor and I selected a treatment option together”. The summated score is transformed into a standardized total value (0 = minimum participation to 100 = maximum participation). The internal consistency of the one-dimensional scale is high (Cronbach's $\alpha = .94$) [38].

2.1.2. Team scale

To measure team interaction from the patients' perspective, this scale was newly designed in the framework of the PEFIT study (“Development and Evaluation of a Training Program on Shared Decision-Making in Medical Rehabilitation” [37]). The Likert scale ranges from 1 (“does not apply at all”) to 4 (“fully applies”). High values correspond to a good communication structure; e.g., “The providers respect each other”. The resulting team scale comprises 6 items and proved to exhibit a high internal consistency (Cronbach's $\alpha = .83$) [37].

2.1.3. Consultation and Relational Empathy (CARE)

For the patient-based measurement of treatment providers' empathy, the German version of the questionnaire “Consultation and Relational Empathy (CARE)” was applied [20] (Original Scottish version by Mercer & Reynolds; Cronbach's $\alpha = .92$; .94, respectively [21,40–42]). Following the results of “Item Response Theory-analysis (IRT)” [44] to ensure the uni-dimensionality of the CARE assessment only 9 of the 10 original items have been used [44]. This item reduction is necessary to ensure a conceptually unequivocal distinction between the concepts physicians' empathy and SDM. The items are answered on a 5-point Likert scale from 1 (“completely”) to 5 (“not at all”). Low values correspond to a high degree of treatment providers' empathy, e.g., “The doctor really listening”. For purposes of scale formation, the polarity of the response format was reversed.

2.1.4. Man-Son-Hing Scale

The construct “Satisfaction with decision” was measured by the “Man-Son-Hing Scale” [45], which comprises 7 items. The first question of the scale measures whether the treatment decisions were made by the physicians or the patients (1 = “only you” to 5 = “only your treatment provider”). Items 2–7 measures the satisfaction with the participation in decision-making on a 5-point Likert scale from 1 (“strongly agree”) to 5 (“strongly disagree”); e.g., “Satisfied with involvement in decision making”. The polarity of the scale was reversed to ensure a consistent interpretation of scale values. In the PEFIT study, a high internal consistency was achieved, with Cronbach's $\alpha = .90$ [37].

2.1.5. Compliance

This scale was also newly conceived in the framework of the PEFIT study [37]. The five global items capture the collaboration of the patients and are answered on a 4-point Likert scale (1 = “not at all true” to 4 = “completely true”). A factor analysis of the data revealed the two dimensions “Patient cooperation” and “Adherence”. While a satisfactory reliability was shown for “Patient cooperation” (Cronbach's $\alpha = .72$), the value for “Adherence” (Cronbach's $\alpha = .57$) remained below the recommended threshold of $<.7$ [46]. The scale is differently scaled; high values of the subscale “Patient cooperation” correspond to a high compliance, e.g., “I take an active part in my treatment”. Low values of the subscale “Adherence” correspond to a high compliance, e.g., “I have only put part of my therapist's recommendations into practice” (items reversed).

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