Received knowledge of elective surgical patients and their trust in hospital staff: a cross-sectional multicentre study

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Abstract

Rationale, aims and objectives: Trust is an essential component of the patient-physician relationship and is of relevance to all patients, including those undergoing elective surgery. Trust can be considered a collective good and there is also evidence of a positive relationship between mutual trust and numerous health benefits. Although information interventions for these patients have been studied and have several positive outcomes, little is known about the relationship between information provision and trust. The aim of this study is to investigate whether an association exists between knowledge received by elective surgical patients and their trust in hospital staff.

Methods: We used the following instruments in this cross-sectional multicentre study: Hospital Patients’ Received Knowledge (HPRK) and a questionnaire to measure trust in an emergency department. The main variables were 40 items about received knowledge and 3 items on trust in physicians.

Results: There is a positive association between the patients’ self-reported knowledge that they received related to the hospital stay and their trust in the physicians (Pearson’s $r$ between the knowledge index and the trust index, $r = 0.416, P < 0.01$).

Conclusion: The study suggests that successful patient information is positively related to patients’ trust in hospital staff.

Keywords

Communication skills, educational interventions, elective surgery, patient education, patient knowledge, patient participation, person-centered healthcare, received knowledge, shared decision-making, trust

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Introduction

Trust is an essential component of the patient-physician relationship [1], a collective good (similar to social capital) that is necessary for an effective healthcare system [2]. Definitions of this concept tend to emphasize different aspects or features, but they usually have in common an element of agency, that is, the belief that health professionals are working in the best interests of patients [3]. Trust is usually measured in three domains: how patients’ perceive health professionals in terms of (1) technical competency, (2) interpersonal competency and (3) agency [2]. Trust may be described as the willingness to leave something significant to another person’s care. Some degree of risk is involved, but the advantage is that the truster does not need to spend resources on precautions [4]. Trust in physicians has attracted more attention over the past few years, but there is a growing concern that trust is declining [3].

It is argued that a major element of trust involves having expectations of someone’s behaviour. Furthermore, healthy trust and distrust require a good understanding of which expectations are reasonable and which are not [5]. Research has shown that for patients with type 2 diabetes, trust is increased with the use of decision aid tools and is associated with knowledge [6]. Studies have also shown that the gender of patients or surgeons does not affect patients’ trust in their surgeons [7] and that the gender of patients does not affect their expectations of the outcomes of surgical procedures [8]. In addition, research has suggested that increasing patient age is associated with reduced trust in general practice registrars [9] and that age is associated with lower expectations of the outcomes of surgery [8]. Research has also indicated that training oncologists in communication skills improves their patients’ trust in them [10]. However, there is insufficient evidence to conclude that any intervention may increase or decrease trust in doctors [3].
Evidence exists to demonstrate a positive association between trust and treatment adherence and between trust and continuity in the patient-physician relationship. A lack of trust may help to explain lower rates of care seeking, preventive services and surgical treatments [2]. Research has also shown that the establishment of a trustful relationship can reduce needle phobia during pregnancy [11] and that a high level of trust may make patients more accepting of the presence of residents during risky operations [12].

**Educational interventions**

Educational interventions are delivered before surgical procedures in an effort to improve patients’ knowledge, perspectives, health behaviors and health outcomes.

Regarding patient knowledge related to total hip arthroplasty and total knee arthroplasty, Santavirta and colleagues [13] did not find significant improvement related to knowledge about complications. By contrast, Johansson and colleagues [14] found that patients who were offered pre-admission education and written educational material had significantly better knowledge and certainty of care-related issues than the control group. Elective surgical patients received less knowledge than they had expected in a study comparing what expectations patients had concerning information and what they felt they had received at the time of admission [15].

Patient perspectives, in the context of the emotional factors associated with undergoing surgical treatment, has been studied and reduced anxiety is well documented, especially pre-operatively [16-19] where post-operative anxiety can also be reduced by pre-operative education [20]. Gammon and Mulholland [16], for example, found increased self-esteem, greater sense of control and a better coping ability in the intervention group as part of their own studies [16,21]. A common finding is that patients’ expectations regarding the post-operative situation is an important issue for them [22] and can be modified significantly through the use of educational interventions [13,23,24]. For children who suffer the loss of an adult relative to cancer, information provided before their loss increases their trust in the care provided [25]. There are certain groups of patients that benefit greatly from educational services regarding individual psychological tendencies or social conditions [26,27]. This is underlined in two review papers. They both stress the need for screening patients at an early stage and for tailoring pre-operative programs to patients [18,19].

On health behavior, the objective of the educational interventions is often improved patient participation [28]. Studies have shown that the provision of information affects patients’ decision-making regarding treatment. For example, one study found that in cases of stable angina, the provision of explicit pre-operative information about operation techniques can prompt patients to choose more relevant treatment [29]. Another study found that patient education before child delivery can influence mothers to choose a natural delivery over a caesarean section [30]. To ensure proper informed consent is obtained from surgical patients, the informational efforts should be started early and patients should be given the opportunity to engage in a discussion with a clinician who is not only well informed, but also has the communication skills necessary to convey information effectively [28]. It should be noted that decision-making is different for patients suffering from chronic conditions and for those in acute care. In acute care, as elective surgery is often categorized, the patient chooses the treatment and the members of the clinical team to execute it. When undergoing treatment for a chronic condition, the patient plays a much more essential role in the plan of care [31]. Another finding relevant to health behaviour is that patient education may also stimulate patients to practise physiotherapy prior to hospitalization [17].

Health outcomes studies have shown that education can reduce the length of hospitalization for orthopaedic patients [16,27,32,33], but not in all cases [17,19]. Cook and colleagues [33] reported the average hospital stay for patients undergoing total knee arthroplasty operations to be 2.5 days, which is lower than the US average and attributed this finding to intensive pre-habilitation and patient education ahead of the surgery. In addition, an association between patient education and a reduction in pain has been found in some trials [34], but not significantly in all [23]. Research has shown that providing patient education to patients with denial tendencies can result in a reduction in pain medication use [26]. A reduction in the use of post-operative services has also been found in patients receiving patient education [33], but this finding is not always significant [32]. In addition, studies have indicated that patient educational interventions maintain complications at a minimal level [33] and improve physical function [34]. Education can improve the quality of life measured nine months after surgery [34].

Overall, patient educational interventions for elective surgery seem to be especially influencing patients’ perspectives and behavioral aspects. There seems to be an effect on knowledge and health outcome also, but evidence is conflicting in these dimensions. The aim of this study was to investigate whether an association exists between knowledge received by elective surgical patients and their trust in hospital staff.

**Methods**

**Settings and sample**

This cross-sectional multi-centre survey was conducted in surgical wards at 3 hospitals in Norway. These hospitals are located in districts that comprise rural areas and small urban centres. The criterion for inclusion was admittance of elective surgical patients to hospital for at least one night for orthopaedics or soft tissue surgical operations. The criteria for exclusion were inadequate Norwegian language skills and an inability to give consent and/or a lack of cognitive skills needed to respond adequately.
Procedures

The patients were given information throughout the treatment process from various sources and in various ways. Some information was provided by their general practitioner (GP) and some by a surgeon, orthopaedist, nurse, physiotherapist or other health professional at the hospital ahead of their admission. They were also provided with information during their hospital stay. In their admission letters for examinations, polyclinic examinations and operative admissions, they were also given written information. This information covered issues related to their health situation, treatment, treatment options, choice of preferred hospital for their operation, financial matters and practical details of where to arrive and what to bring. For some trajectories, group-based education was offered. The patients’ relatives were usually invited to take part in most information activities.

The questionnaires were distributed post-operatively by staff members in the surgical departments and were collected before discharge. The department staff members responsible for distributing and collecting the questionnaires also kept a list of how many patients were asked to respond so that the response rate could be calculated. As soon as the questionnaires and the forms of consent were filled in, they were sent by internal mail to the project manager, who is also the first author of this article (SC). They were kept in accordance with the research regulations. Of the 148 returned questionnaires, 1 questionnaire was excluded from the analyses because less than 50% of the items had been answered; hence, the sample size is 147.

Measurements

Hospital Patients’ Received Knowledge (HPRK)

The Hospital Patients’ Received Knowledge is a 40-item questionnaire that uses a 4-tier response scale. It makes a distinction between 6 dimensions of knowledge: biophysiological, functional, experiential, ethical, social and financial [15]. The copyright holders granted us permission to use it in the present study.

Questionnaire to measure trust in an emergency department [1]

Of the 18 questions on the questionnaire to measure trust in an emergency department (QMTED), 3 questions were used in the present study. Although the questionnaire was originally meant to be used in emergency units, it is relevant for other trajectories that exist for a specific period of time. The copyright holders had no objection to the fact that we restructured the formulations on the form to make it fit for a surgical department and not an emergency department. They also allowed us to use the instrument in whatever way we found relevant for our study.

Because the QMTED [1] had not been previously translated into Norwegian, we contacted the group that had developed the instrument and obtained their permission to create a Norwegian version. After we had translated it into Norwegian (the first ever version in Norwegian) ourselves, we elicited the help of a professional Norwegian-English translator to create an English version based on our Norwegian version. A comparison of the 2 English versions (the original English version and the English version based on the Norwegian translation) revealed only a few differences; hence, we initially saw no reason to alter the first Norwegian version. However, when we consulted a professor of social medicine, we decided to alter the Norwegian version, based on his suggestions.

Ethical considerations

In accordance with the regulations of the Health Research Act of 1 July 2008 [35], the research project was presented to the Regional Committees for Medical and Health Research Ethics (REC), but formal consent was not required from the REC (Case no. 2012/2306). We followed the guidelines from the committee, which are based on the Norwegian Health Research Act 2008 [35]. In accordance with the research regulations, the project is registered with the privacy policy officer in the hospital trust.

Analysis

In accordance with the analysis of Rankinen and colleagues [15], summative variables were constructed on the 6 dimensions of knowledge - biophysiological, functional, experiential, ethical, social and financial - by calculating the mean values of the corresponding items. In addition, a total index of the knowledge was calculated from the mean values of the 6 summative variables. The response category ‘does not apply’ was scored as 0 and excluded. It is important to note that we coded the scoring differently than did Rankinen and colleagues.

In our study, ‘Fully agree’ = 4 and ‘Fully disagree’ = 1, whereas ‘Fully agree’ = 1 and ‘Fully disagree’ = 4 in their study. We coded the scores on this scale because it seems to be an intuitively more relevant style of scoring when it is to be compared with the trust scale, which is scored on a scale of 1 to 10, with 10 as the most positive reply. The data were analysed using Pearson’s correlation. The analysis centred on the association between the trust index (based on the 3 trust-related questions) and the indexes of received knowledge (both the 6 dimensions of knowledge and the total knowledge index).

Results

The sample consisted of 147 patients. The mean age of the sample was 56 years (SD 15.5, range 19-88 years). There were 91 females (64.1%) and 51 males (35.9%) and 5 missing values. Of these 142 patients (147 patients - 5 missing values), 24 patients (16.9%) completed lower secondary school; 15 patients (10.6%), upper secondary school or trade school; 42 patients (29.6%), vocational training; 27 patients (19.0%), < 4 years at the university
level and 34 patients (23.9%), ≥4 years at the university level. The response rate was 47%.

The knowledge dimension with the highest score is the biophysiological dimension (8 items, mean 3.53 of 4). These questions are about the information that the patients reported having received on medical subjects and treatment-related issues of relevance to the condition for which they were being treated. This dimension also has the lowest standard deviation. The financial dimension (4 items) has the lowest score in this sample (mean 2.38 of 4) and the highest standard deviation (1.05). The total score of received knowledge is 3.06 of 4 (SD 0.67) (Table 1).

All knowledge dimensions correlate positively with the trust dimension (Table 2). The biophysiological knowledge dimension is the one that correlates the strongest with trust in physicians \( (r = 0.415, P < 0.01) \). The questions (8 items) are related to medical aspects of their condition and to the treatment offered. The financial dimension has the weakest - but significant - correlation with trust \( (r = 0.196, P = 0.035) \). These questions (6 items) are about to what degree the participants received knowledge about certain aspects, including costs, insurance and sickness benefits. As shown in Table 3, a positive correlation exists between trust and the total knowledge index \( (r = 0.416, P < 0.01) \).

### Discussion

The aim of this study is to investigate whether an association exists between knowledge received by elective surgical patients and their trust in hospital staff. The results
demonstrate a positive association between the two indices.

The main finding of the present study is the existence of a positive relationship between patients’ received knowledge and their trust in physicians. Previous studies have also shown a positive association between patient knowledge and trust in physicians for patients with type 2 diabetes [6]. This similarity cannot be taken for granted, as there are of course major differences between elective surgical treatment and medical care for patients with type 2 diabetes [31]. The similarity of these findings for patients undergoing different types of treatment is interesting, because it helps shed light on how trust is created for patients receiving medical care.

The notion that trust is to a great extent related to patient expectations is of relevance. Research has shown that informing patients enables them to prepare themselves for their hospital treatment [5]. Hence, the correlation between received knowledge and trust may be explained by the concept of expectations, which corresponds well with the forward-looking nature of trust [2]. A number of studies have demonstrated how patient education affects patients’ choices [28]. Successful patient education may enable patients to establish realistic views about their treatment process. The establishment of these realistic views may be linked to trust.

Several studies have demonstrated associations between patient education interventions and psychological benefits such as reduced anxiety [16,17,19], enhanced sense of control [16], improved quality of life [34] and better coping abilities overall [16,21]. Because trust is a complex and multi-dimensional phenomenon [2], it could be argued that all these issues are related. Research has also shown that trust is related to health professionals’ communication skills [2,10] and to patients’ communication experiences with physicians and other hospital staff members. The role of trust in interactions between patients and physicians may explain the present study’s results. If so, then this finding underlines the emotional aspect of trust [2].

Traditionally, hospitals have directed most of their patient education efforts to biophysiological issues [15] and, in the present study, this is the dimension that has the strongest association with trust. The biophysiological dimension is also the one with the highest mean score, both in this study and in the study by Rankinen and colleagues [15]. Knowledge about financial issues has a relatively low mean score (2.38 on a 1-4 scale) and the weakest association with trust. This finding could indicate that financial issues are not very important to most patients in this study, with the most likely explanation being that they expect financial matters related to health to be taken care of by the public healthcare system in Norway.

The pattern of received knowledge in the present study is similar to that of a previous study using the same instrument in a different setting. That is, the scoring order of the indexes is identical: in both studies, the biophysiological dimension has the highest score and the financial dimension has the lowest score. The level of scoring is, however, different, with the scoring in our study being in general higher than the scoring in the other study [15]. In our study, the total score is 3.06 - in comparison to 2.04 when recalculated to a 1 to 4 scale, with 1 as the lowest score and 4 as the highest score ($P < 0.001$). The difference may be explained by methodological differences: our material was collected from three different hospitals, whereas material for the other study was collected from only one hospital. Other details regarding data collection are very much alike. A plausible explanation for the difference is simply the setting of the studies. It is still worth noting that the order of the dimensions is similar in the two studies in terms of the mean score in each dimension.

Regarding the trust measures, the level of scores seems relatively high. This finding may be explained by the ceiling effect, which is a challenge when it comes to trust measurement instruments in general [3].

Because the instrument of measuring trust is limited to questions about trust in physicians, conclusions cannot be drawn regarding patients’ views on trust in other health professionals, nor trust in the hospital trust, the hospital or the surgical department. Another limitation is the already mentioned weakness of most validated instruments in measuring trust - that is, the ceiling effect [3]. This study was conducted in three different departments, but within the same hospital trust and within a limited geographical area. These departments have their own management systems and it is therefore assumed that differences exist in their clinical work, thus making the project a valid multi-centre study. The instruments used are valid, the findings contribute new knowledge and the theme should be of interest to the field of trust in surgical care and in healthcare more broadly.

**Conclusion**

This study suggests that received knowledge is associated with patients’ trust in hospital staff. This association maybe explained in terms of patients’ realistic expectations and the emotional aspect of health professionals’ communication skills. As biomedical knowledge seems to be the dimension of knowledge that is the most strongly associated with trust, hospitals should focus on providing patients with accurate and reliable information about the disease in question and its treatment, including treatment options, so as to achieve patient trust. Re-designing patient education programmes in an effort to enhance patients’ trust in hospital units and health professionals may also be beneficial. Further research is needed to investigate how trust can be increased through interventions that aim to explore the impact of doctors’ specific training or the use of a person-centered or decision-sharing approach on patients’ trust [3].
Acknowledgements and Conflicts of Interest

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