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Received Knowledge of Care as Evaluated by Patients and Their Significant Others: A Feedback-Register Study

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ABSTRACT

Aims and Objectives: Register data and tracking evaluations by patients and their significant others through feedback can assist in the quality assurance of patient education. This study uses an observational, feedback-registry study to analyse systematic, register-based evaluative feedback from patients and their significant others on received knowledge of their care in one university hospital district and the factors connected to the feedback.

Design: An observational, feedback-register study.

Methods: The data consisted of evaluative feedback on received knowledge ($n = 83{,}388$) in 2019 at a Hospital District in Finland. The data was extracted from a feedback register. Initially, the patients and their significant others gave feedback with structured feedback surveys and/or feedback text messages. Data were analysed with descriptive and inferential statistics.

Results: Evaluative feedback from patients and their significant others on the quality, understandability, sufficiency and clarity of received knowledge of their care was rather positive. Feedback from patients was more positive than that from their significant others and, correspondingly, from elective patients compared to emergency patients. Positive feedback on received knowledge correlated with a positive perception of the general quality of care.

Conclusions: The results indicate mainly positive evaluations of received knowledge. These findings are relevant for several stakeholders: in the quality assurance of patient education, for example, nurses, healthcare managers and researchers can act in key positions.

1 | Introduction

Evaluations by patients and their significant others are central to assuring high-quality, empowering healthcare [1]. In this assurance, patient education is part of quality, which can be evaluated by received knowledge [2]. These evaluations include feedback and patient-reported outcome measures [3, 4]. Building a scientific understanding of these evaluations is in line with current international health strategies [1, 4]. Feedback-informed quality assurance can serve as an investment in efficient healthcare and, therefore, can reduce pressure on national healthcare systems and improve sustainable societies [1]. This study specifically focuses on the feedback from patients and their significant others on received knowledge of their care.

The right to know about one's care is a human right recognised by ethical principles and several laws [5, 6]. The right derives a correlative duty for nurses and physicians to distribute information and support knowledge with patient education [5, 6]. Apart from patients, knowledgeable significant others can be complementary actors in care and potentially foster its quality [7]. Therefore, this study has an interest in both patients and their significant others. The study's aim was to analyse systematic, register-based evaluative feedback from patients and their significant others on received knowledge of their care in one university hospital district and the factors connected to the feedback.

2 | Background

Received knowledge of one's care can be an empowering factor [8]. In empowering patient education, patients and professionals share the same goal and strive for the empowerment of patients to take care of themselves, understand the meaning of health and be able to act for it [8, 9]. In evaluating empowering knowledge, its content should be evidence-based, multidimensional and correspond with the patient's individual knowledge expectations [10]. The content of knowledge is reported in an earlier work [11]. In this study, the factors related to the cognitive processing of empowering knowledge were adopted as the evaluation criteria, which include the quality, sufficiency, clarity and understandability of received knowledge [8, 9, 12]. 'Received knowledge' refers to the knowledge of patients and their significant others about their care in the hospital district services. Evaluating the difference between information and knowledge can be complex. Information is not knowledge itself, but the meaning that may be derived from a representation through interpretation [13]. In patient education, information is often distributed by the professionals with the aim of covering all relevant evidence-based information for the patients. Knowledge is information received by the patient, based on individual cognitive processing. In the evaluation, patients and their significant others presumably give subjective, evaluative feedback on their own cognitive structured and interpretated knowledge in line with the increased emphasis of patient empowerment [8, 12] and rights [5], which highlights subjective evaluation of knowledge over distribution of information. The interest is in distributed information and received knowledge during the entire care process.

Previous literature indicates that received knowledge does not correspond to patients' expectations in many countries in Europe [10]. The evaluations and expectations of received knowledge can change throughout the care process, that is, before, during, and after the care [14, 15], and hospital patients may overestimate their knowledge [16]. Limited knowledge or deficits in received knowledge tend to be connected to a long-term health problem, female gender [10], older age [16], lower socio-economic status [10, 16], health literacy and cognition [16]. In recent years, received knowledge via patient education has been shaped by pronounced efficiency and limited time resources: Policy strategies and technological developments have decreased the number of beds and the average length of stay in nearly every OECD country since 2011; Finland experienced one of the largest reductions [17]. This study was carried out to provide insights into the body of literature on received knowledge by analysing evaluations from patients and their significant others via a feedback-register.

Evaluations of received knowledge can be obtained by systematically collecting feedback from patients and their significant others. Systematic collection generates register data, which assists in exploring potentially generalised outcomes that are raised by patients and their significant others. For decades, feedback collection has been a standard practice aimed at identifying deficits and quality assurance [4, 18]. However, little attention has been given to received knowledge in the field of feedback-based literature. Few previous studies have reported knowledge-related content of feedback: for example, physicians' knowledge [4] and communication between patients and healthcare professionals [19]. Feedback has been used to improve knowledge-related practices [20], such as communication [18, 21] and patient education [3, 18, 22]. Previous studies have called for further research on feedback by large patient cohorts beyond specific projects [23], the relationship between healthcare quality and feedback for clarifying the nature of the relationship [4], background factors of feedback givers to discover possible underserved groups [4] and feedback from significant others to provide insights into their involvement in patient-centred care [18]. Guided by these knowledge gaps, this study aims to answer the following research questions:

1. What evaluative feedback do patients and their significant others give on received knowledge of their care at the university hospital district?
2. What background factors, if any, are connected to evaluative feedback from patients and their significant others on received knowledge of their care at the university hospital district?

3 | Methods

3.1 | Design

An observational feedback-register study design was applied.

3.2 | Data

The data was extracted from the standard hospital district-wide feedback register. The register data, that is, the evaluative feedback, was produced by patients and their significant others. The register holder is one of the largest of the 20 hospital districts in population in Finland covering 479,341 citizens in the region in the 2019 data collection year [24]. It is a public hospital district including both general and specialised services and a variety of clinical fields, for example, a university hospital, regional hospitals, outpatient clinics, expert services (e.g., physiotherapy, speech therapy), laboratories and an imaging department. Systematic collection of feedback in this hospital district has been continuous since 2009 [25]. The feedback is a patient-oriented part of the quality assurance at the hospital district [25].

TABLE 1 | Description of the feedback forms used in the initial register-data collection.

Feedback form	Number of items evaluating the received knowledge	Response options	Items for background factors	Response options
Feedback surveys[a]	6	1–5, from 1 = disagree completely to 5 = agree completely	The role of the feedback giver	Patient/significant other
			Patient's gender	Woman/man
			Patient's age in years	< 11/11–17/18–30/31–50/51–65/66–79/> 79
			Admission to care	Elective/emergency
			Evaluation of the general quality of care	1–5, from 1 = disagree completely to 5 = agree completely
Feedback text messages[a]	1	1–5, from 1 = disagree completely to 5 = agree completely	Evaluation of the general quality of care	1–5, from 1 = disagree completely to 5 = agree completely

[a]The Finnish national feedback network.

For the register, data was initially collected with two structured feedback forms: (1) feedback surveys and (2) feedback text messages (Table 1).

The feedback survey consists of six items evaluating the quality, understandability, sufficiency and clarity of the received knowledge. Presumably after discharge, patients and their significant others evaluate their received knowledge in different phases of the care process: one item evaluates received knowledge before, two during and three after hospital district care (Table 2). The response scale is a Likert scale ranging from 1 to 5, from 1 = disagree completely to 5 = agree completely. There are five background items (Table 1). The feedback survey comes in both electronic and paper format. The electronic one is freely available on the hospital district's website. The paper version can be obtained on the hospital district's premises and returned to a return box or staff or sent to the hospital district. After the register holder receives the paper feedback, it is stored in the feedback register and conjoined with the electronic feedback.

As for the feedback text message, they are used in initial register-data collection to record evaluative feedback from patients on the understandability of received knowledge of their care and one background item (general quality of the care). The response scale is a Likert scale ranging from 1 to 5, from 1 = disagree completely to 5 = agree completely (Table 1). The feedback text message is sent by the hospital district to every patient after discharge. Patients can respond by replying to the text message.

To collect the feedback on received knowledge, the validity of both forms has been considered in their development by the hospital district, and their reliability was also analysed statistically in this study. As for validity, the feedback survey was developed in the national patient-feedback network from 2007 to 2011 (the Finnish national feedback network) [25]. The feedback survey is based on national legislation [6], previous literature on patient feedback, expert panels, and earlier feedback forms used in hospital districts nationally [25]. In the follow-up development work in 2018, items for feedback forms in national social and health

TABLE 2 | Evaluative feedback from patients and their significant others on received knowledge of their care.

Feedback surveys ($n = 6080$)	n	Mean[b]	SD[c]
Instruction before the hospital district care			
Instructions were sufficient prior to the care[a]	4655	4.33	1.15
Knowledge during the hospital district care			
Information about the care was understandable[a]	5209	4.45	1.14
Information was sufficient during the care[a]	5204	4.36	1.23
Instruction and knowledge after the hospital district care			
Instructions about whom to contact, if necessary, were clear[a]	4940	4.42	1.21
Instructions for the home were good[a]	4778	4.37	1.24
I know how the care proceeds hereafter[a]	5023	4.38	1.23
Feedback text messages ($n = 77{,}308$)			
Information about the care was understandable[a]	76,006	4.66	0.72

[a]The Finnish national feedback network.
[b]Likert scale range 1–5, from 1 = disagree completely to 5 = agree completely.
[c]Standard deviation.

care were recommended [26] by the Finnish Institute for Health and Welfare, an independent state-owned expert and research institute operating in the administrative branch of the Ministry of Social Affairs and Health [27]. These items were incorporated into both the feedback survey and the feedback text message, although many additional items were maintained based on the 2007–2011 development work on the feedback survey. To the knowledge of the authors, no psychometric testing has been reported. As for reliability, this was the first study to formulate a sum variable and provide evidence of internal consistency.

In the register, 83,388 items of feedback were collected in 2019, which was the last full year before the COVID-19 pandemic. All the feedback with a response on at least one of the survey's items or text message evaluating the received knowledge (Table 2) were included. The data was anonymous, and it was possible to receive multiple items of feedback by the same patients and their significant others during the year, which makes it impossible to calculate the exact number of individuals giving feedback. In 2019, the total number of patients in the hospital district was 229,361. Significant others gave feedback on the care of a patient, but it was not possible to match feedback given by patients and their significant others. Furthermore, no additional background factors were available from the register, except the evaluation of the general quality of care, the role of the feedback giver, patient's gender, patient's age and admission to the hospital district care (Table 1).

3.3 | Data Abstraction

An IT specialist from the clinical informatics service at the hospital district extracted the data from the feedback register and cleaned it (e.g., duplicate removal and partial pseudonymisation). Data were extracted after the hospital district granted research permission. The researchers were in continuous communication with the IT specialist throughout the process. The IT specialist sent the data securely to researchers in June 2020; the researchers had no direct access to the feedback register. The data was not linked to any other registered data or patient documents.

3.4 | Data Analysis

Data was analysed using IBM SPSS version 26.0 (IBM Corp. Released 2019. Armonk, NY, USA: IBM Corp). Descriptive statistics, such as frequencies (*n*), percentages (%), means (*m*), standard deviations (SD) and standard errors (SE), were used to illustrate the data. A sum variable was formulated by adding up the six items evaluating the received knowledge from the feedback survey to enhance measurement stability and interpretability. Cross-tabulation with chi-squared analysis was used to analyse the difference between feedback surveys and feedback text messages and their connection to background factors. The role of the feedback giver (patient/significant other) was analysed as a background factor. Multifactor analysis of variance was used to find the connections of background factors on the sum variable (main effects model). Sidak adjustments for multiple comparisons were used for pairwise comparisons. Multinomial logistic regression models were used for ordinal scaled outcome variables (main effects model). Spearman's rank correlation coefficient analysed the correlation between evaluations of received knowledge and quality of care. A statistical test was considered to be significant if the *p*-value was ≤ 0.05.

4 | Results

4.1 | Subjects

Of the 83,388 feedback items from patients and their significant others on received knowledge of their care, 6080 were given by the feedback survey and 77,308 by feedback text message. Most of the feedback surveys were given by patients ($n = 4863$, 91%). Among patients who responded to the background items, the majority were women ($n = 2982$, 63%) and electively admitted to any unit of the hospital district ($n = 2617$, 64%, Table 3).

4.2 | Evaluative Feedback on the Received Knowledge

Evaluative feedback on received knowledge by all patients and significant others was rather positive (Table 2). In the feedback survey, the sum mean was 4.33 (SD 1.1). Among the feedback items, the lowest value was on the sufficiency of instructions prior to care (4.33, SD 1.15) and the highest on the understandability of the information (4.45, SD 1.14). Feedback

TABLE 3 | Patients' background factors as related through feedback ($n = 6080$).

The role of the feedback giver[a]	Patients		Significant others of the patient	
	n	%	*n*	%
	4863	91	499	9
Patient's gender[b]				
Women	2982	63	245	54
Men	1760	37	205	46
Patient's age in years[b]				
< 11	3	0	107	28
11–17	34	1	47	12
18–30	363	10	40	11
31–50	778	22	53	14
51–65	937	26	26	7
66–79	1219	34	43	11
> 79	275	8	65	17
Patient's admission to the hospital[b]				
Elective	2617	64	162	39
Emergency	1448	36	249	61

[a]Percentages represent proportions of the total sample. Patients gave feedback on their own care. Significant others gave feedback on patient's care.
[b]Percentages represent proportions within feedback by patients and feedback by significant others.

on the understandability of received knowledge was statistically more positive in feedback text messages compared to the feedback surveys (4.66, SD 0.72 vs. 4.45, SD 1.14, $p \leq 0.001$). The Cronbach's alpha of the feedback survey was 0.96.

In the three phases of the care process (before, during and after), some variation was identified in the feedback survey. The mean value of evaluative feedback on the received knowledge before care was 4.37 (SD 1.11), during care was 4.48 (SD 1.07) and after care was 4.47 (SD 1.07), showing a statistically significant less positive value before than during and after care (all $p \leq 0.001$).

4.3 | Factors Connected to Evaluative Feedback on Received Knowledge

Both at the level of the sum variable and in all items, the evaluative feedback on received knowledge by patients was more positive than by significant others (Tables 4, 5). Likewise, evaluations of the general quality of care by patients were more positive compared to evaluations by significant others, $\chi^2(8, N = 4837) = 301.26$, $p \leq 0.001$.

The connection to four background factors (patient's gender, age, admission and quality of care) was analysed from the evaluative feedback given by all patients and their significant others together. At a sum level, the patient's age, admission and evaluation of the general quality of care were connected in a statistically significant way to evaluative feedback on received knowledge (Table 4). Evaluative feedback was more positive among paediatric patients (0–10-year-olds whose feedback was given mainly by their significant others) compared to adult patients (18–79-year-olds), $F(6, 845.71) = 3.12$, $p = 0.005$, partial $\eta^2 = 0.01$, and among the electively admitted patients compared to the emergency patients, $F(1, 845.71) = 17.98$, $p \leq 0.001$, partial $\eta^2 = 0.02$.

As for the evaluation of the general quality of care (evaluated with a single item), positive feedback was connected to the positively evaluated quality, $F(4, 845.71) = 1755.16$, $p \leq 0.001$, partial $\eta^2 = 0.69$. The general quality of care correlated with evaluative feedback on received knowledge (sum variable in the feedback survey, $rs = 0.653$, $p \leq 0.001$). The more positive evaluative feedback on received knowledge was, the more positive was the perceived quality of care. Evaluations of the quality of the care were less positive in the feedback surveys (mean 4.45, SD 1.23) than in the feedback text messages (mean 4.71, SD 0.68, $p \leq 0.001$).

At an item level, the patient's admission, gender and age had a statistically significant connection to evaluative feedback on received knowledge (Table 5). In all items, evaluative feedback was more positive among the electively admitted patients compared to the emergency patients. Evaluative feedback by men was more positive than by women on the sufficiency of the instructions prior to care and the understandability and sufficiency of information during care. As for age, among older patients (over 80 years old), evaluative feedback was more positive compared to several other age groups. This applies to the understandability and sufficiency of information during care and the clarity of instructions about who to contact when compared to those under 66 years old, the home care instructions and the knowledge about the proceeding of care when compared to 11–65-year-olds, and finally, the sufficiency of instructions prior to care when compared to those under 51 years old.

TABLE 4 | Factors connected to evaluative feedback on received knowledge of patient's care at a sum variable level.[a]

	Mean[b]	SE[c]	p[d]
Patients	3.30	0.04	0.001
Significant others of the patient	3.14	0.03	
Patient's gender			
Woman	3.24	0.03	0.109
Man	3.20	0.02	
Patient's age			
< 11	3.43	0.06	0.005
11–17	3.25	0.07	
18–30	3.15	0.04	
31–50	3.14	0.03	
51–65	3.17	0.03	
66–79	3.20	0.03	
> 79	3.20	0.04	
Admission to care			
Emergency	3.14	0.02	≤ 0.001
Elective	3.30	0.03	
Evaluation of the general quality of care			
Disagree completely	1.87	0.04	≤ 0.001
Disagree partially	2.66	0.06	
Neither agree nor disagree	2.98	0.06	
Agree partially	3.85	0.04	
Agree completely	4.74	0.02	

[a]The six items evaluating the received knowledge from the feedback survey.
[b]Likert scale range 1–5, from 1 = disagree completely to 5 = agree completely.
[c]Standard error.
[d]Multifactor Analysis of Variance.

In summary, evaluative feedback from the patients and their significant others on received knowledge was rather positive, yet negative feedback was connected at the sum variable level with knowledge before care, feedback given by significant others, emergency patients, 18–79-year-old patients and the negatively evaluated general quality of the care.

5 | Discussion

Registers are a way to achieve evaluations by patients and their significant others on their care and, thereby, create opportunities for them to participate in developing high-quality,

TABLE 5 | Factors connected to the evaluative feedback on the received knowledge of patient's care at an item level.

Feedback item	**The scale**[b]											
Instructions were sufficient prior to the care[a]	**Disagree completely**			**Disagree partially**			**Neither agree nor disagree**			**Agree partially**		
Variable[b]	**OR**[c]	***p***	**95% CI**[d]	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**
The role of the feedback giver: significant other	3.51	≤0.001	1.89, 6.52	2.66	0.013	1.23, 5.79	1.22	0.590	0.59, 2.55	0.96	0.883	0.54, 1.69
Admission: emergency	6.64	≤0.001	4.55, 9.68	5.82	≤0.001	3.67, 9.22	2.95	≤0.001	2.13, 4.09	2.11	≤0.001	1.69, 2.64
Patient's gender: man	0.75	0.137	0.51, 1.10	0.73	0. 193	0.45, 1.18	1.07	0.709	0.76, 1.49	1.25	0.037	1.01, 1.54
Patient's age in years												
<11	5.28	0.004	1.68, 16.63	0.77	0.767	0.13, 4.50	1.89	0.419	0.40, 8.91	1.51	0.373	0.54, 3.73
11–17	4.38	0.015	1.34, 14.39	2.20	0.270	0.54, 8.95	7.42	≤0.001	2.45, 22.46	0.98	0.972	0.38, 2.52
18–30	6.18	≤0.001	2.43, 15.73	3.67	0.009	1.39, 9.69	5.62	≤0.001	2.37, 13.31	1.77	0.017	1.11, 2.83
31–50	4.53	0.001	1.84, 11.15	2.30	0.080	0.90, 5.86	4.33	≤0.001	1.91, 9.80	1.45	0.069	0.97, 2.18
51–65	1.59	0.341	0.61, 4.16	1.10	0.845	0.41, 2.97	1.58	0.293	0.67, 3.71	1.16	0.471	0.78, 1.71
66–79	1.22	0.682	0.47, 3.14	0.92	0.871	0.35, 2.42	1.56	0.294	0.68, 3.55	0.66	0.034	0.44, 0.97
Information about the care was understandable[a]	Disagree completely			Disagree partially			Neither agree nor disagree			Agree partially		
The role of the feedback giver: significant other	6.99	≤0.001	3.93, 12.42	7.32	≤0.001	3.86, 13.86	3.30	≤0.001	1.69, 6.46	0.83	0.540	0.45, 1.53
Admission: emergency	1.79	1.794	1.24, 2.59	1.75	0.012	1.13, 2.69	1.93	0.001	1.31, 2.84	1.67	≤0.001	1.34, 2.09
Patient's gender: man	0.68	0.058	0.45, 1.01	0.83	0.432	0.53, 1.31	1.36	0.119	0.92, 2.01	1.49	≤0.001	1.20, 1.85
Patient's age in years												
<11	3.56	0.026	1.17, 10.86	1.08	0.909	0.28, 4.12	0.83	0.771	0.25, 2.83	1.11	0.841	0.39, 3.14
11–17	3.77	0.033	1.12, 12.73	3.77	0.033	1.11, 12.78	0.98	0.977	0.25, 3.90	1.45	0.406	0.60, 3.51
18–30	6.98	≤0.001	1.17, 19.06	3.70	0.017	1.26, 10.83	2.44	0.031	1.09, 5.48	1.72	0.031	1.05, 2.82
31–50	5.27	0.001	1.98, 14.03	3.83	0.009	1.40, 10.50	2.46	0.017	1.18, 5.15	1.47	0.085	0.95, 2.29
51–65	3.20	0.023	1.18, 8.72	2.62	0.067	0.94, 7.32	1.12	0.784	0.51, 2.45	1.33	0.196	0.86, 2.05

(Continues)

TABLE 5 | (Continued)

Feedback item	The scale[b]											
Instructions were sufficient prior to the care[a]	**Disagree completely**			**Disagree partially**			**Neither agree nor disagree**			**Agree partially**		
Variable[b]	**OR[c]**	***p***	**95% CI[d]**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**
66–79	1.25	0.681	0.44, 3.55	1.19	0.748	0.41, 3.43	0.55	0.149	0.24, 1.24	0.81	0.343	0.53, 1.25
Information was sufficient during the care[a]	Disagree completely			Disagree partially			Neither agree nor disagree			Agree partially		
The role of the feedback giver: significant other	7.74	≤0.001	4.59, 13.05	5.69	≤0.001	3.04, 10.65	2.53	0.012	1.23, 5.21	0.68	0.251	0.36, 1.31
Admission: emergency	1.97	≤0.001	1.43, 2.71	2.17	≤0.001	1.49, 3.18	1.76	0.004	1.20, 2.59	2.08	≤0.001	1.67, 2.59
Patient's gender: man	0.64	0.012	0.45, 0.91	0.58	0.012	0.38, 0.89	1.45	0.056	0.99, 2.13	1.15	0.229	0.92, 1.43
Patient's age in years												
< 11	3.18	0.032	1.10, 9.15	1.74	0.447	0.42, 7.19	1.85	0.289	0.60, 5.73	1.74	0.294	0.62, 4.90
11–17	2.77	0.087	0.86, 8.86	3.418	0.076	0.88, 13.28	1.40	0.601	0.40, 4.98	1.41	0.445	0.58, 3.43
18–30	10.39	≤0.001	4.16, 25.99	7.83	≤0.001	2.59, 23.66	2.88	0.010	1.29, 6.40	1.92	0.010	1.17, 3.16
31–50	7.35	≤0.001	3.00, 17.98	7.05	≤0.001	2.42, 20.51	2.34	0.024	1.12, 4.89	1.43	0.119	0.91, 2.24
51–65	3.70	0.005	1.47, 9.29	3.95	0.014	1.33, 11.78	0.92	0.838	0.42, 2.04	1.37	0.161	0.88, 2.11
66–79	1.50	0.404	0.58, 3.87	1.49	0.489	0.48, 4.64	0.57	0.168	0.26, 1.27	0.95	0.810	0.62, 1.46
Instructions about whom to contact, if necessary, were clear[a]	Disagree completely			Disagree partially			Neither agree nor disagree			Agree partially		
The role of the feedback giver: significant other	6.52	≤0.001	3.82, 11.11	3.81	≤0.001	1.89, 7.67	4.19	≤0.001	2.23, 7.88	1.32	0.360	0.73, 2.40
Admission: emergency	2.04	≤0.001	1.46, 2.84	2.36	≤0.001	1.55, 3.60	1.85	0.001	1.28, 2.67	1.64	≤0.001	1.27, 2.11
Patient's gender: man	0.83	0.295	0.59, 1.17	0.69	0.109	0.44, 1.09	0.99	0.958	0.68, 1.44	1.06	0.645	0.82, 1.37
Patient's age in years												

(Continues)

TABLE 5 | (Continued)

Feedback item	The scale[b]											
Instructions were sufficient prior to the care[a]	**Disagree completely**			**Disagree partially**			**Neither agree nor disagree**			**Agree partially**		
Variable[b]	**OR**[c]	***p***	**95% CI**[d]	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**
< 11	4.07	0.012	1.36, 12.21	0.16	0.094	0.02, 1.37	1.20	0.772	0.35, 4.06	0.72	0.544	0.25, 2.09
11–17	3.30	0.054	0.98, 11.13	1.36	0.615	0.41, 4.51	0.72	0.690	0.14, 3.71	0.89	0.822	0.34, 2.38
18–30	8.05	≤ 0.001	2.98, 21.72	1.02	0.970	0.39, 2.69	3.83	0.003	1.57, 9.38	1.69	0.051	1.00, 2.84
31–50	7.10	≤ 0.001	2.71, 18.61	1.79	0.150	0.81, 3.98	3.55	0.003	1.52, 8.26	1.22	0.419	0.75, 1.967
51–65	3.63	0.011	1.35, 9.76	1.15	0.746	0.50, 2.61	2.02	0.112	0.85, 4.82	0.98	0.948	0.61, 1.58
66–79	1.86	0.224	0.68, 5.06	0.78	0.567	0.35, 1.79	1.10	0.825	0.46, 2.66	0.66	0.078	0.41, 1.05
Instructions for the home were good[a]	Disagree completely			Disagree partially			Neither agree nor disagree			Agree partially		
The role of the feedback giver: significant other	5.81	≤ 0.001	3.46, 9.74	4.016	0.001	1.80, 8.94	1.72	0.151	0.82, 3.58	1.23	0.500	0.68, 2.23
Admission: emergency	2.35	≤ 0.001	1.71, 3.25	2.10	0.002	1.30, 3.39	2.02	≤ 0.001	1.40, 2.93	1.51	0.001	1.18, 1.92
Patient's gender: man	0.77	0.126	0.55, 1.08	0.77	0.306	0.47, 1.27	1.03	0.863	0.71, 1.51	1.05	0.688	0.83, 1.34
Patient's age in years												
< 11	2.30	0.116	0.81, 6.52	6.23	0.116	0.64, 60.85	1.66	0.391	0.52, 5.27	0.68	0.535	0.20, 2.31
11–17	3.45	0.028	1.15, 10.40	3.11	0.430	0.19, 52.28	2.23	0.152	0.75, 6.65	1.64	0.308	0.63, 4.28
18–30	9.74	≤ 0.001	4.14, 22.95	24.47	0.002	3.18, 188.31	2.00	0.078	0.93, 4.31	2.53	0.001	1.45, 4.41
31–50	5.22	≤ 0.001	2.25, 12.13	16.80	0.006	2.22, 126.81	2.08	0.034	1.06, 4.10	1.86	0.016	1.13, 3.09
51–65	3.64	0.003	1.55, 8.53	6.64	0.072	0.85, 52.10	0.82	0.588	0.39, 1.70	1.68	0.037	1.03, 2.75
66–79	1.46	0.404	0.60, 3.51	5.73	0.094	0.74, 44.12	0.53	0.087	0.25, 1.10	1.03	0.913	0.63, 1.68

(Continues)

TABLE 5 | (Continued)

Feedback item	The scale[b]											
Instructions were sufficient prior to the care[a]	**Disagree completely**			**Disagree partially**			**Neither agree nor disagree**			**Agree partially**		
Variable[b]	**OR[c]**	***p***	**95% CI[d]**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**	**OR**	***p***	**95% CI**
I know how the care proceeds hereafter[a]	Disagree completely			Disagree partially			Neither agree nor disagree			Agree partially		
The role of the feedback giver: significant other	7.51	≤0.001	4.59, 12.30	3.64	≤0.001	1.76, 7.50	1.82	0.165	0.78, 4.25	1.37	0.264	0.79, 2.39
Admission: emergency	1.72	0.001	1.26, 2.34	1.56	0.049	1.00, 2.42	1.87	0.002	1.26, 2.77	1.48	0.001	1.17, 1.87
Patient's gender: man	0.88	0.444	0.64, 1.22	0.84	0.446	0.53, 1.33	0.90	0.619	0.60, 1.35	1.29	0.027	1.03, 1.62
Patient's age in years												
<11	1.99	0.221	0.66, 5.96	0.84	0.824	1.76, 3.83	1.69	0.445	0.44, 6.51	0.85	0.753	0.31, 2.33
11–17	3.34	0.038	1.07, 10.44	3.95	0.021	1.23, 12.68	0.94	0.942	0.19, 4.79	0.80	0.679	0.28, 2.27
18–30	8.98	≤0.001	3.59, 22.46	3.39	0.014	1.28, 8.97	1.73	0.244	0.69, 4.33	1.76	0.033	1.05, 2.96
31–50	7.06	≤0.001	2.90, 17.19	2.32	0.076	0.92, 5.89	2.19	0.056	0.98, 4.89	1.61	0.043	1.02, 2.55
51–65	4.85	0.001	1.97, 11.93	1.43	0.463	0.55, 3.73	1.29	0.550	0.56, 2.93	1.26	0.324	0.80, 1.98
66–79	1.92	0.165	0.77, 4.83	0.74	0.549	0.28, 1.99	0.93	0.861	0.41, 2.11	0.99	0.979	0.63, 1.55

[a]The Finnish national feedback network.
[b]Reference variables and reference category of the scale (agree completely) are not shown in this table as they serve as baselines for comparison in the Multinomial Logistic Regression (the role: patient, admission: elective, patient's gender: woman and patient's age: >79).
[c]Odds ratio.
[d]Confidence interval.

empowering healthcare. The aim of this study was to analyse systematic, register-based evaluative feedback from patients and their significant others on the received knowledge of their care in one university hospital district and the factors connected to the feedback. Based on the results, evaluative feedback by both patients and their significant others was rather positive. This applied especially to electively admitted patients and those who perceived the general quality of their care positively. From the patients' perspective, the finding indicates the realisation of patients' right to know, as defined in Finnish law (Law 785/1992), and received knowledge serving as one criteria of quality of care [5, 6]. Knowledge can support significant others in fostering the quality of an individual's care [7]. Both perspectives, of patients and their significant others, are relevant in empowering citizens, providing high-quality healthcare and creating sustainable societies [1]. The connection between some background factors and more critical evaluative feedback suggests that more attention and further research are needed for educational activities [12, 16].

The positive evaluative feedback on received knowledge is in line with the ethics, laws and strategies emphasising the information distribution and supporting patients' knowledge in healthcare [1, 5, 6]. However, previous literature indicates patients have limited knowledge of their care in the hospital [16]. Patients and their significant others have expressed criticism, for example, on the timing, sufficiency and understandability of received knowledge [14, 28]. The difference between the findings of this study and previous literature might be attributed to study designs and the measures used to evaluate received knowledge. First, the previous findings are not from large, register-based studies, which rarely report results on the received knowledge of patients and their significant others of their care. Second, based on earlier studies, patients may tend to overestimate their own knowledge [16]. However, in feedback collection, an individual's subjective experience has substantive value. Third, studies have highlighted an overly positive impression of feedback [4, 29]. This may apply to our findings, too. Feedback text messages were sent to all patients whereas in the feedback surveys, patients and their significant others had to actively identify a channel for disclosing the feedback. Therefore, patients and their significant others may have had an experience they specifically wanted to express through feedback surveys, which can partly explain why evaluations by feedback surveys were less positive than by feedback text messages. In future research, the meaning of different feedback collection channels should be investigated.

A register-based study is advantageous for obtaining extensive data efficiently and cost-effectively [30, 31] and higher level of precision in the estimation of values with the large sample size [32]. The large sample size, however, can contribute to statistical differences and the meaningfulness in a real-world context should be considered carefully [32]. Regardless, the study's findings contribute to existing literature on the received knowledge at the population level.

Consistent with previous literature [14], received knowledge varies in phases of the care process; evaluative feedback was less positive before hospital district care. Previous studies have assumed that negative feedback can arise from unmet expectations [29], which seems to apply to patients' received knowledge [10]. As patients and their significant others expect timeliness in terms of their received knowledge [14], the service navigation and other content and methods of patient education before care are areas for increased attention. In this study, the item directed to before care solely measures the sufficiency of received knowledge, leaving aside other evaluation criteria (e.g., understandability and clarity) and it had the least responses, albeit a great number. Therefore, future studies are required to establish the result and reasons for varying feedback on the received knowledge related to the phases of care. Further evidence could give a basis for planning patient education to support individuals' empowerment during their care process.

The evaluative feedback revealed the divergent positions of patients and their significant others in patient's care [7]. This study confirms the previous findings indicating that patients perceive their received knowledge more positively than significant others [33, 34], yet (assumed) the parents of children (0–10 years old) gave more positive evaluative feedback than several other age groups. This may reflect the significant others' responsibility and legal obligation to their children due to their limited cognitive capacity, whereas adult patients can often control or refuse to share information with their significant others [5].

In this study, evaluations of significant others can be affected by many factors, which are not available for control or evaluation from the data. For example, significant others might not be involved in patient education sessions, or they might not be provided with the same information as patients due to patients' right to privacy. Furthermore, significant others could give negative feedback due to divergent expectations from patients. Regardless, significant others are often central to patients' well-being, and they can be counted as important actors in evaluating and assuring healthcare quality [4, 7]. Thus, it is important to acknowledge feedback from significant others and pay attention to them in patient education within the limits of adult patients' right to privacy [5].

A patient's admission and gender seem to have a connection to received knowledge. This finding may reflect the variety of expectations of diverse patients [29] and imply the success of patient education in meeting these expectations. As expected [35], evaluative feedback on received knowledge among elective patients was more positive compared to emergency patients. Elective patients and their significant others have a chance to become familiar with possible instructions and have an opportunity for planned patient education. This demonstrates a need for innovations in patient education in emergency care, which often has unstable, rapid, and stressful features [35]. As for gender, evaluative feedback was more positive among male patients in a few individual items relating to sufficiency and understandability of knowledge, yet it is difficult to extrapolate these findings. Gender has been observed to be connected with health information-seeking behaviour [36] and feedback provisions [4], which raises intriguing questions regarding the nature and extent of gender differences in knowledge evaluations.

The finding concerning the positive connection between received knowledge and general quality of care was in line with the results in previous literature [2, 37]. This connection supports the assumption of received knowledge being an indicator of healthcare quality [29]. Therefore, in striving for high-quality healthcare, it is advisable to invest in patient education and other information distribution activities. For example, previous studies imply that patients and their significant others prefer honest and compassionate patient education that supports their understanding [14].

5.1 | Strengths and Limitations

The strengths of this study arise from a register as a data source and include a large sample and standardised feedback system [30]. As for the sample, it is a relatively large set of patient- and their significant-other-oriented register data. It is suitable for scientific purposes [31], and the gender and age representation in the sample follows the hospital patient demographics in Europe in 2019 fairly well [38]. Regarding the feedback system, there was a large and lengthy national cooperation behind the feedback register, which aimed to develop evaluative feedback to focus on topics relevant to healthcare quality and standardise the service-user feedback systems in healthcare [25]. The voluntary nature of the feedback, allowing all patients and their significant others to decide by themselves to give the feedback, can be assumed to be honest and meaningful for them.

The evaluative feedback from 2019 is the latest data describing the standard practice, as the COVID-19 pandemic caused some changes in health care and hospitals in Finland since March 2020. The timing of this study can serve as a point of reference and assist in discovering the potential shift in evaluations of patients and their significant others with comparative or follow-up study designs. Analysing current feedback would give insights into the strengths and improvements needs in healthcare during and after exceptional circumstances.

The definition and operationalisation of received knowledge in this study can direct the interpretation of the findings. An analysis of the received knowledge could deepen the interpretation in the future studies. Other identified limitations are rather typical for register and feedback studies. For register studies, missing or unavailable variables can be a source of unmeasured confounding factors [30]. This should be considered in this study in terms of background factors. We do not know the circumstances, health conditions, or any details of the care of those giving feedback—not even if multiple feedback pertains to the same patient. Evaluative feedback by patients and significant others was mainly analysed together. However, due to discovered differences between their feedback, this should be reassessed in future studies, and matching the evaluations would give novel information. The register consisted of feedback solely from one university hospital district. As for feedback studies, limitations are related to the complex nature of the feedback and the measures used to collect it. Feedback tends to be skewed towards overly positive feedback [29]. Additional limitations can arise from the psychometrics of the feedback survey. The high Cronbach's alpha merits detailed investigation into the number and relationships of the items, although the large register data may contribute to its high value.

5.2 | Recommendations for Further Research

The healthcare practices leading in positive feedback on received knowledge is recommended to study for sharing and implementing the best practices. At the same time, the factors resulting in less positive feedback by significant others and emergency patients should be investigated. The complexity of measuring the received knowledge [12, 39] highlights the importance of including patients' voices and those of their significant others in the processes and outcomes of future research. For enabling their voices, one option is the growing availability of register data in healthcare. They provide efficient and cost-effective opportunities to meet current research priorities creatively [30, 31, 40], yet the registers could benefit from the standardisation and content development. In the field of patient education, there seems to be a lack of utilisation of registers for research. For developing inclusive patient education, evidence of the versatile and rich experiences of patients and their significant others is necessary. This requires the collection of an extensive range of patients' background factors beyond the scope of factors typically available in feedback registers, such as cognitive processes of patients and professionals, values and actions based on the values and social determinants of health [12, 36]. To further develop patient education, activities aiming to support received knowledge could be investigated with experimental studies, for example, by investigating innovative digital solutions as well as solutions based on multidimensional use of art in patient education. In addition, observational studies can be beneficial in studying factors promoting or limiting the knowledge of patients and their significant others, such as health professionals' resources or healthcare organisations' values.

5.3 | Implications for Policy and Practice

The study's findings have implications for healthcare policy and practice. The received knowledge of patient's care could be further improved before hospital care as well as among emergency patients and significant others. This has relevance to nursing. Nurses are the largest group of professionals working in hospitals [17], and studies have proposed that they are the key professionals in patient education [41]. Nurses may have the greatest potential for supporting the received knowledge of patients and their significant others. This requires well-educated and prepared professionals and healthcare organisations that place a high value on healthcare quality. For example, professional education of nurses in empowering patient education could be an advantageous solution [8, 9], and nursing administrators should be aware of their role in the quality assurance of both patient education and feedback systems [42].

6 | Conclusion

This study provides a cross-sectional, register-based analysis of evaluative feedback from patients and their significant others

on received knowledge of their care before the COVID-19 pandemic. Evaluative feedback on the received knowledge was rather positive and correlated with evaluations of the general quality of care. However, evaluative feedback varied among patients and their significant others, as well as based on admission and a patient's age. The reasons for variation and other possible factors related to received knowledge should be studied in future research so that healthcare professionals can provide ethical and high-quality patient education, which aligns with the patients' right to know.

Author Contributions

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: S.I., H.V., J.K., M.S., H.L.-K. Involved in drafting the manuscript or revising it critically for important intellectual content: S.I., H.V., J.K., M.S., H.L.-K. Given final approval of the version to be published: S.I., H.V., J.K., M.S., H.L.-K. Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: S.I., H.V., J.K., M.S., H.L.-K.

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Disclosure

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Ethics Statement

Research ethics and good scientific practice were followed according to the Declaration of Helsinki. The study received ethical approval from the University Ethics Committee (8/2020, 23 March 2020), and permission to use the feedback register from the hospital district was granted (J15/20, 13 May 2020). Initially, when patients and their significant others have given feedback voluntarily to the hospital district, the obtained data was pseudo-anonymized, and the privacy was secured as individuals were not identifiable. Data was protected and managed according to the university's data policy.

Consent

Feedback register data consists of patients' and their significant others' feedback, which has been given voluntarily and on their own initiative. According to the national law and research integrity guidelines, consent was not needed for the data extraction from the register.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The register's data supporting this study's findings are only provided with permission from the Turku University Hospital, Wellbeing Services County of Southwest Finland (https://www.auria.fi/tietopalvelu/en/tutkijalle/index.html).

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