University of Applied Sciences

Faculty of Life Sciences

Health Sciences degree

HELP-5 – EVALUATION OF THE IMPLEMENTATION OF A DIGITAL TOOL TO SURVEY THE QUALITY OF LIFE OF CANCER PATIENTS AND THE ANALYSIS OF THE OUTCOME DIMENSIONS OF THE IMPLEMENTATION

Thesis

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Isabelle Sophie Meyer,

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Content

Abstract

Cancer and mental health are currently the biggest health problems worldwide according to Covid-19. In order to cope with them, good tools of all kinds are needed and, among other things, digitalization must be continued.

This work was done in cooperation with a project at the Medical Center Hamburg Eppendorf (UKE), which developed a digital questionnaire to survey the Health-related quality of life (HrQoL) of cancer patients at the UKE. In addition to the implementation of this questionnaire, tools were developed for the evaluation of the implementation based on the implementation outcome dimensions developed by Proctor et al. (2011). To what extent the questionnaire components used for the individual outcome dimensions provide a discriminating result and whether there are other factors influencing the implementation process.

The methodology used was a factor analysis and a qualitative analysis of collected data.

The result of the factor analysis showed that the queried implementation outcome dimensions are not selective.

The qualitative evaluation provided evidence that survey timing and possible higher-level structures should be considered when developing appropriate evaluation instruments.

In summary, this work demonstrates the need to develop more valid evaluation instruments for implementation of digital patient reported outcomes (PROs) to improve patient care and practitioner working conditions and to better address current health problems.

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List of Abbreviations

C.	Comment
ICU	Intensive care unit
HrQoL	Health-related quality of life
KMO	Kaiser-Meyer-Olkin
MKG	Department of Oral and Maxillofacial Surgery
MSA	Measure of Sampling Adequacy
ORIC	Organizational Readiness for Implementing Change
Q.	Question
PRO	Patient reported outcomes
Sig.	Significance
UKE	Medical Center Hamburg-Eppendorf
WEVAL	Workshop Evaluation Form

Glossar

Cancer	“a serious disease that is caused when cells in the body grow in a way that is uncontrolled and not normal, killing normal cells and often causing death”(Cambridge Dictionary, 2021a).
Health-related quality of life (HrQoL)	“…refers to how well a person functions in their life and his or her perceived wellbeing in physical, mental, and social domains of health.”(Hays & Reeve, 2008, p. 241).
Implementation	“the act of starting to use a plan or system”(Cambridge Dictionary, 2021b).
Outcome	a result or effect of an action, situation, etc.”(Cambridge Dictionary, 2021c).
Patient reported outcomes (PROs)	“…encompass data reported directly by people about how they feel and function, such as symptoms, physical function, and quality of life.” (Basch et al., 2018, p. 122).

1 Introduction

The health service system in all countries is very important and can cost a country up to 27.8 percent of a countries governmental expenditures (Yang, 2021). The current leading health problems are covid-19 followed by cancer and mental health worldwide (Elflein, 2021a).

In this work we focus on the group of cancer patients at the Medical Center Hamburg Eppendorf. This group of patients is high and is predicted to grown over the years on national and an international level (Elflein, 2021d) and the severity of this disease for the patients in all different types is high (Elflein, 2021c).

For this group of patients in particular, but also for all others, it is important that they receive the best possible care and modern the hospital equipment. In the age of digitalisation, this means that tasks that were previously done or are still done on paper should now be done digitally. The digital transformation contains important challenges in the healthcare organizations (Stewart, 2021a). This development should make the work of the practitioners easier. Many different tools have already been developed for this purpose, but the use of many of them is still very low (Stewart, 2021b). The greatest challenges for the healthcare organisations lie in digitising bureaucracy, covering the costs and, in particular, finding the most suitable digital tools to improve healthcare for the patients (Stewart, 2021a).

Implementation is particularly important for the introduction of new digital tools, as the success of their use in the hospital depends on their successful implementation (Duncan & Murray, 2012). Proctor et al. (2011) define implementation outcomes as "the effects of deliberate and purposeful actions to implement new treatments, practices and services". The aim of implementation research is to develop sustainable and accepted implementation strategies for interventions and to establish them in practice (Duncan & Murray, 2012). When evaluating an implementation, it should be noted that a distinction is made between poor effectiveness of the implemented intervention and poor implementation (Glasgow et al., 2012). This allows and requires a detailed evaluation and error analysis of the implementation process (Ross et al., 2018).

This paper evaluates the implementation of the Help-5 questionnaire in ten stations of the UKE. In this project, a questionnaire, the Help-5, was developed to improve health-related quality of life (HrQoL). For this implementation, the project developed tools to evaluate the implementation process, based on the implementation outcome dimensions of proctor et al. (2011), and tried to implement them. Using factor analysis and qualitative data from field

notes of all data, the developed tool, a three-part questionnaire for practitioners, will be tested for validity and complementary data on the implementation process will be collected and analysed (Görlach et al., 2020). The Help-5 questionnaire collects patient-reported outcomes (PROs) that generally play an important role in patient-centred care (Bjordal, 2004) and can contribute to improving patient care, especially in the clinical setting (Basch et al., 2018, p. 122).

This thesis begins with the general objective and research question as well as the introduction of the project at the UKE in chapter 2. As a basis for the thesis, chapter 3 then explains the relevant terms for this thesis and thus underlines the importance of this work. Chapter 4 describes the methodology for the factor analysis and the qualitative survey and evaluation. The results with the conclusions are presented in Chapter 5. The discussions on the methodology and the results from chapter 5 are presented in chapter 6. In Chapter 7, recommendations for action for research are derived from the results. Finally, to answer the research questions, the conclusion and the outlook follow.

2 Objective

The master's thesis is carried out in cooperation with the UKE and the PRO-ONKO Routine project.

The data will be collected during the implementation of the Help-5 questionnaire on the stations of Oral and Maxillofacial Surgery in the Department of Oral and Maxillofacial Surgery of cancer patients in the intra- and post-phase. This is a follow-up survey of a single station out of ten stations at UKE due to previous staff shortages. The project will monitor and analyse the process and success of implementation.

In order to successfully integrate new digital tools, especially PROs, into the patient care process, the first and most important step after development is the implementation process. The success and thus the maximum benefit for patient and practitioner can depend on this step to be used long-term in routine care (Proctor et al., 2011).

Therefore, in addition to the core task and question of the UKE project, the aim of this paper is to analyse the discriminatory power of the implementation dimensions according to Proctor et al.. In order to verify whether they are really selective and whether they should be used unchanged in other hospitals as a basis for further implementation processes or whether the entire concept should be optimised. It is also of particular interest to find further influencing factors to the existing ten dimensions that can contribute to the improvement of the implementation process.

This leads to the following two research questions, which this thesis will answer.

To what extent are the dimensions for measuring implementation according to Proctor et al. applied to the example of the implementation survey of the practitioners in the Help-5 project at the UKE separable?

Which other factors can affect the implementation process?

Technical terms used in this work are explained in the glossary.

3 Background

This chapter serves as the basis and background to explain and describe the current state of the literature on the essential topics of this thesis. It begins with the explanation and relevance of patient reported outcomes (PROs), which the questionnaire collects. Then the topic of cancer is dealt with, including a brief explanation of the clinical picture, the severity of the disease and the relevance and development of the disease in Germany and worldwide.

As the basis for the project, the concept of implementation, as well as further the specifics of the implementation of PROs and the implementation in the oncological treatment processes especially in outpatient and inpatient stations.

3.1 Patient reported outcomes (PROs)

Patient reported outcomes (PROs) capture data directly reported by a person about their feel, function of the body and quality of life (HrQoL) (Basch et al., 2018, p. 122).

The interest in implementing PROs in clinical practice is increasing, even though PROs questionnaires were developed in this setting. The reason given is that clinicians miss about half of their patients' symptoms during treatment (Basch et al., 2018, p. 122).

The use of PROs improves communication between doctor and patient. This includes increased physician awareness of symptoms, symptom management, safety and HrQoL. This is shown by several studies (Basch et al., 2018, p. 122).

3.2 Cancer

Cancer is a colloquial term for a malignant disease. This includes carcinoma, sarcoma or leukaemia (Pschyrembel, 2014, p. 1153).

Cancer is a very common disease worldwide with different case numbers depending on the type of cancer disease. According to Figure 1 the highest prevalence has the cancer type breast cancer with 47.5 per 100.000 population, followed by prostate cancer with 30.4 per 100.000 population and colorectum cancer with 18.6 per 100.000. According to Figure 1 at least 33 cancer types exist worldwide (Elflein, 2021b).

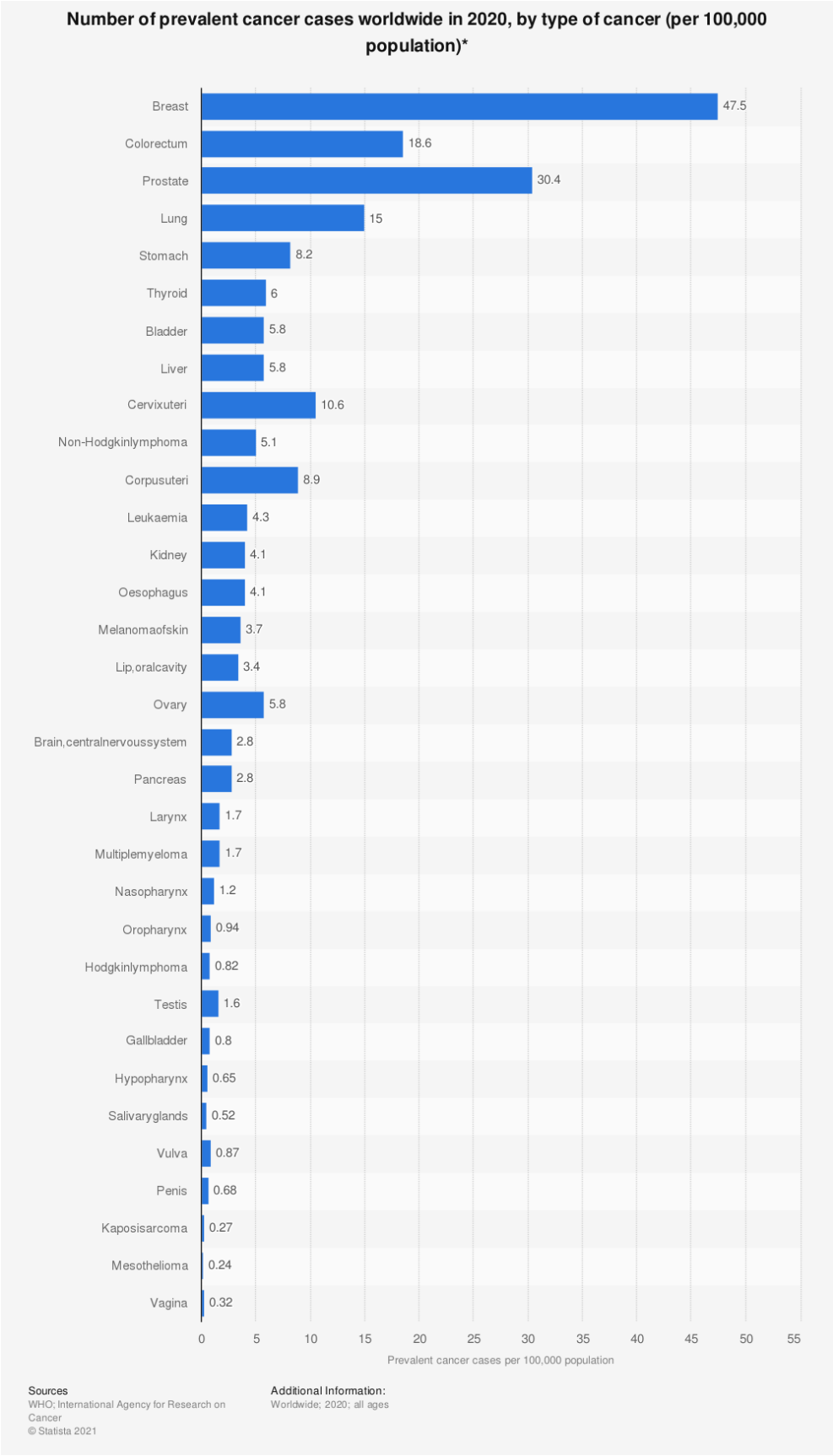

Figure 1: Number of prevalent cancer cases worldwide in 2020, by type of cancer (per 100,000 population) (Elflein, 2021b).

That the disease cancer is not only widespread and in various forms (Elflein, 2021b), but also deadly, is shown by the mortality rate in 2020 with 9.96 million deaths worldwide and the predicted increasing mortality rate until 2040 with 16.3 million deaths. Figure 2 shows an predicted linear increase from 2020 to 2040 (Elflein, 2021c).

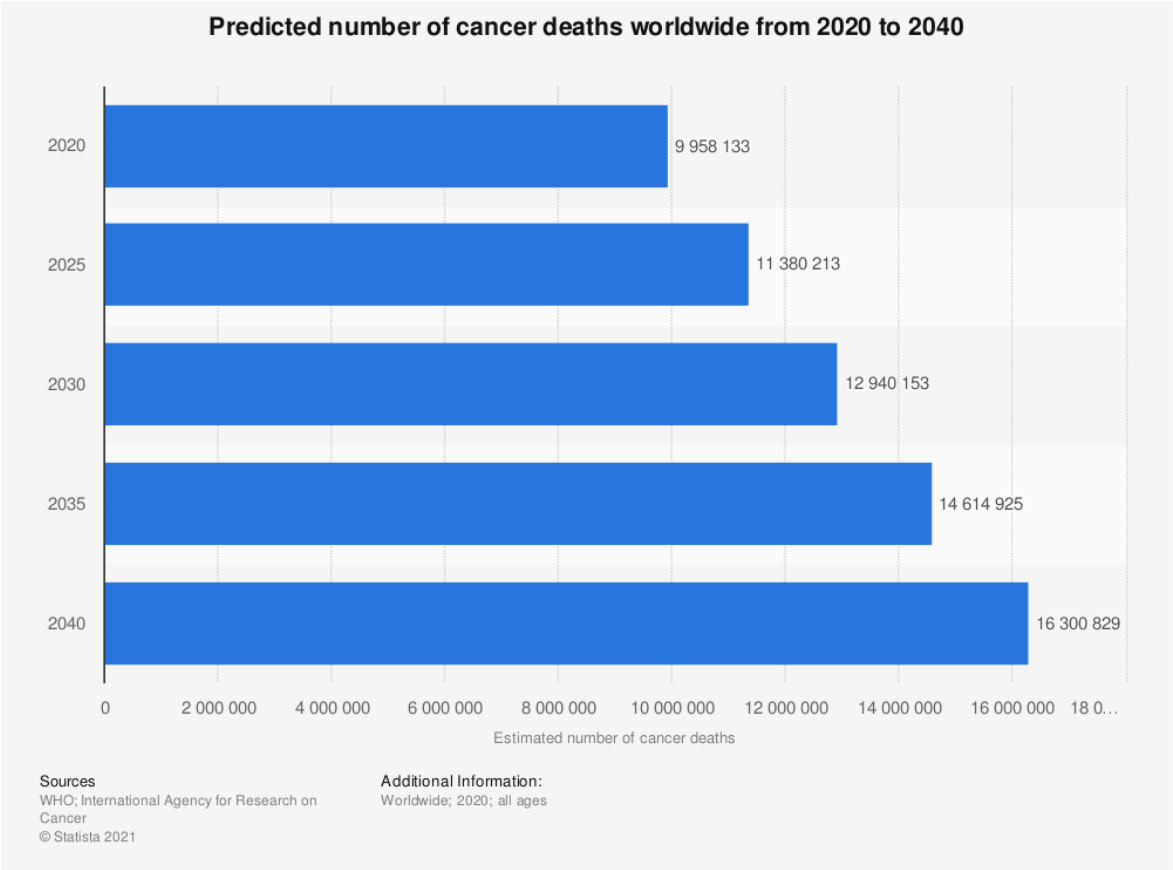

Figure 2: Predicted number of cancer deaths worldwide from 2020 to 2040 (Elflein, 2021c).

The predicted development of cancer is an increased number of 30.2 million incident cases in the year 2040 compared to 19.2 million new cases of cancer in 2020. According to Figure 3 the numbers will rise from 2020 to 2040 in a linear way (Elflein, 2021d).

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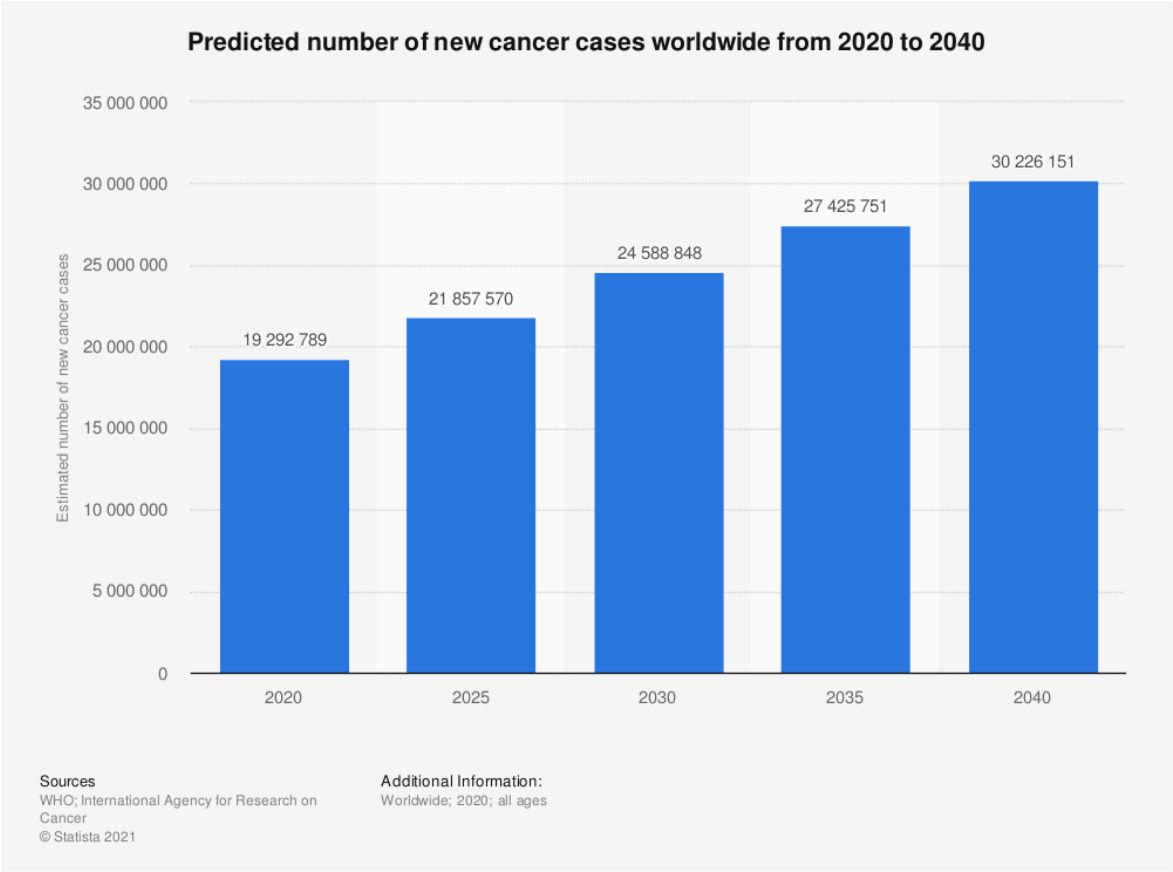

Figure 3: Predicted number of new cancer cases worldwide from 2020 to 2040 (Elflein, 2021d).

3.3 Implementation

The term implementation refers to “the act of starting to use a plan or system” (Cambridge Dictionary, 2021b) or “the act of putting a plan into action or of starting to use something” (Cambridge Dictionary, 2021b).

For the field of implementation research Proctor et al. (2011) developed a concept of implementation outcomes and categorised them into eight dimensions. Acceptability, Adoption, Appropriateness, Cost, Feasibility, Fidelity, Penetration and Sustainability (Proctor et al., 2011).

3.3.1 Implementation of PROs in the oncological setting

In daily clinical practice, there is increasing interest in the use and collection of the HrQol (Hilarius et al., 2008). This can be collected using the method of patient reported outcomes (PROs) (Basch et al., 2018, p. 122). However, the successful implementation of PROs

poses many challenges. As a result, the integration and use of PROs in clinical practice, especially in oncological care, is little used (Duncan & Murray, 2012).

3.4 Digitalisation

The progress of digitization has grown and become more relevant (Statista, 2020) in recent years. In the healthcare system, this progress and necessity has also grown strongly.

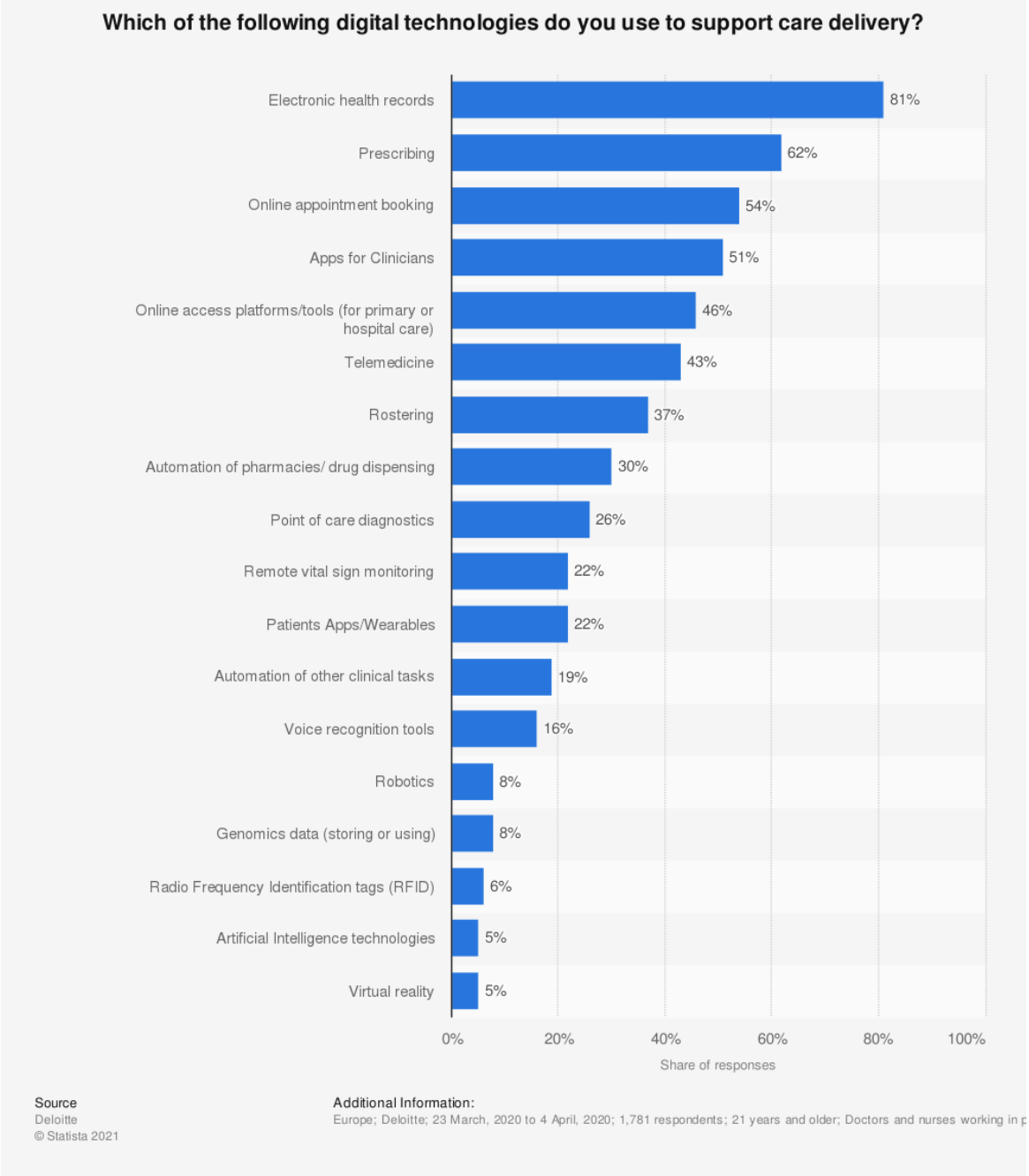

Figure 4: Which of the following digital technologies do you use to support care delivery? (Stewart, 2021b).

New digital tools are being developed and applied (Bertelsman Stiftung, 2018). As shown in Figure 4, the most frequently used new digital tool is the electronic health record with already 81 percent of the surveyed doctors and nurses in 2020. With equally high percentages, the process of prescribing medication with 61 percent and the process of booking appointments online with 54 percent come behind (Stewart, 2021b). These high current usage figures and the variety of the other 15 digital tools in Figure 4 underline the importance and the broad spectrum of digitalisation tools and their many possibilities. Figure 5 shows how much action is still needed. More than 50% of the leading challenges faced by healthcare organisations in Europe 2020 are in the area of bureaucracy in healthcare. Not far behind are the challenges of managing the costs of acquiring the technologies and the problems of finding the right digital technologies (Stewart, 2021a).

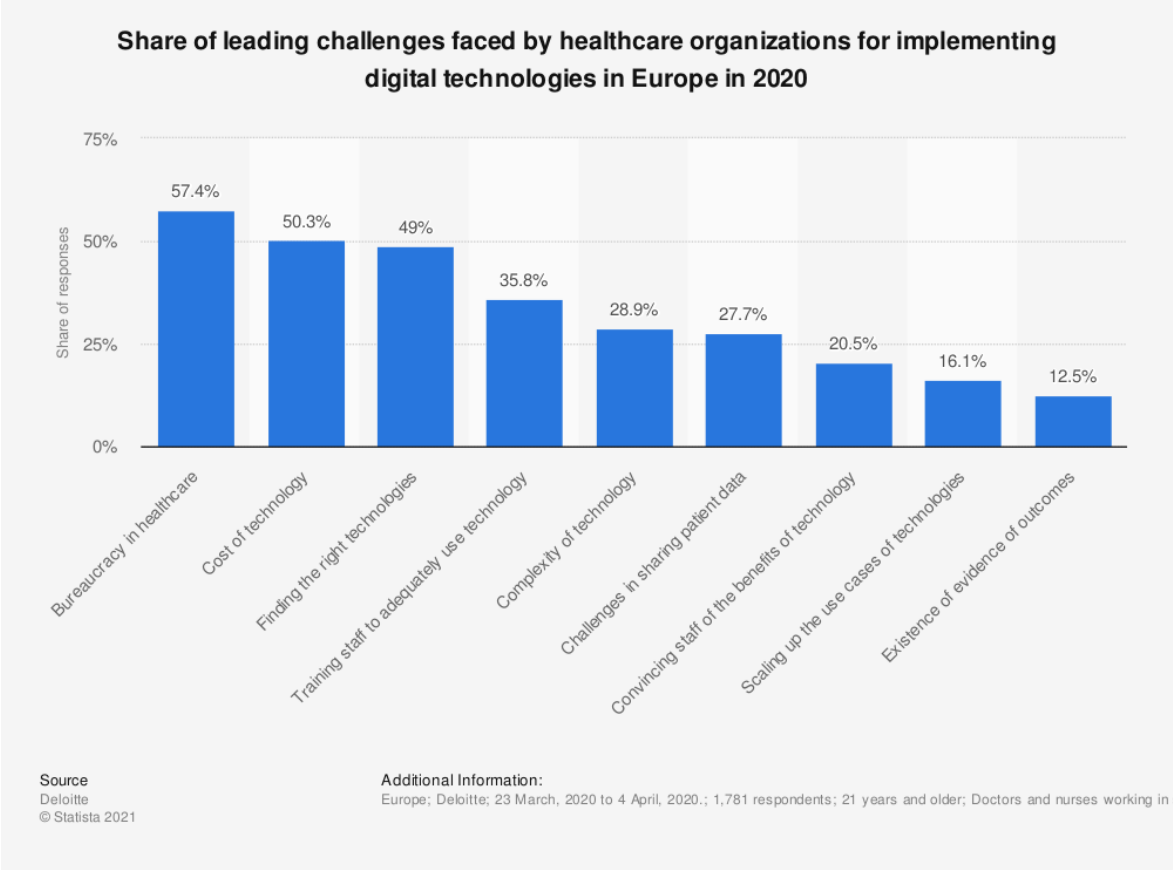

Figure 5: Share of leading challenges faced by healthcare organizations for implementing digital technologies in Europe in 2020 (Stewart, 2021a).

4 Methodology

The following chapter deals with the procedure for answering the two research questions. Chapter 4.1 describes the project at the Medical Center Eppendorf-Hamburg within the framework of which this work is carried out and whose data is partially used and further data is collected in the context of this work. The following chapter 4.2 describes the procedure for analysing the implementation dimensions of the data collected in the project described in chapter 4.1 for discriminatory power using factor analysis. This serves to answer the first research question. To answer the second research question, the methodology is explained in chapter 4.3. In this chapter, the procedure with the collected qualitative data from the field notes is described. In chapter 4.4 is the possible method to combine the results described.

4.1 The Main Project

This thesis is a sub-project of the main project "Implementation analysis of patient reported outcomes (PROs) in oncological routine care: an observational study protocol" at the Medical Center Hamburg-Eppendorf. The aim of the project is to identify relevant barriers and facilitators and design suitable implementation strategies. The implementation strategies will be evaluated to improve the effectiveness of a PRO measure assessment in inpatient and outpatient cancer routine care (Görlach et al., 2020).

To describe the project briefly: Within the framework of the project *"Implementation analysis of patient reported outcomes (PROs) in oncological routine care: an observational study protocol"*, the Help-5 questionnaire was developed to assess the quality of life of cancer patients. This was implemented or attempted to be implemented on all selected ten stations of the UKE. Accompanying the implementation, this implementation was evaluated with specially developed and compiled tools. These included two additional questionnaires for practitioners and patients, field notes and interviews. These were designed and compiled on the basis of the implementation dimensions according to Proctor et al. (2011). The process of the implementation evaluation with the developed evaluation tools was divided into three phases/periods. Pre, while and post implementation. The questionnaires of the practitioners and patients were designed differently for each implementation phase (Görlach et al., 2020).

The three-part questionnaire for the practitioners, i.e. doctors and nurses, was designed for the survey before, during and after the implementation of the Help-5 questionnaire and includes questionnaire components for seven of the eight implementation outcomes. In Appendix A to C the three parts of the questionnaire are attached. For *Acceptability* the Acceptability E-Scale was used. For *Adoption* the questionnaire Organizational Readiness for

Implementing Change (ORIC) was used. For the implementation outcome *Appropriateness*, the translated relevance scale of a Workshop Evaluation Form (Weval) was used. For *Feasibility*, the support scale of the Weval was used. The outcome *Cost* is assessed with two questions on the estimated and actual time taken to complete the Help-5 questionnaire with a patient. For *Fidelity*, the question about the actual number of times the Help-5 result was used with patients is used. For *Penetration*, the question about the actual number of times the Help-5 was used is used. The questionnaires are anonymised with codes (Görlach et al., 2020).

The field notes serve to document the observed implementation process by the scientific staff members of the project. The form mainly consists of nine questions, each of which asks for a different number of outcome dimensions according to Proctor et a. (2011). The form is attached as Appendix D.

The task of this thesis is to conduct a follow-up survey for the MKG station during and after the implementation phase of the main project. The implementation and survey was previously discontinued due to a lack of staff. This includes retraining individual practitioners if necessary, writing the field notes for this period and having the practitioners fill out the questionnaires to evaluate the implementation. In return, previously collected data may be used for this thesis to answer the questions. This includes the summary of the field notes of each station and the data of the questionnaires of the practitioners of all stations.

4.2 Factor Analysis

The explorative factor analysis serves to analyse the discriminatory power of the implementation outcomes, here also referred to as outcome dimensions, to validate the questionnaire and the questionnaire components used to collect the individual outcome dimensions according to Proctor et al.

The first step after collecting the last questionnaires from the practitioners will be to check the data set for missing values. In case of missing values, only the values of incomplete questionnaires are calculated with the expectation-maximisation algorithm and the missing values of the demographic data are estimated, if this is possible with the data.

The next step is to create the sample description. This will contain information on the number of participants for the individual survey periods, as well as the number of participants by department and station. In addition, information on the distribution of gender, profession and work experience will be provided.

The sum scales of the respective implementation dimensions will first be formed for the respective time period and then a mean value was formed from these in order to have a value for calculating the factor analysis and under the assumption that the time period has no influence on the discriminatory power of the dimensions. The dimensions were formed as follows:

Acceptability: Calculated with the questionnaire Acceptability E-Scale pre and post implementation;

Adoption: Calculated with the questionnaire ORIC pre and post implementation;

Cost: Calculated with the expected time and needed time for using the Help-5 pre and post implementation;

Feasibility: Calculated with the support scale of the Weval pre and post implementation;

Fidelity: Calculated with two questions on the estimated and actual time taken to complete the Help-5 questionnaire with a patient while and post implementation;

Penetration: Calculated with the questions about the actual number of times the Help-5 result was used with patients while and post implementation;

Appropriateness: Calculated with the relevance scale of the Weval questionnaire while and post implementation (Görlach et al., 2020).

The exploratory factor analysis is then carried out using the IBM SPSS Statistics 26 programme and the calculated summation scales for each outcome dimension.

First, the variables of the outcome dimensions are tested for their suitability for factor analysis using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy, Bartlett's Test of Sphericity and the Checking of Communalities (Backhaus et al., 2016, 397 f.). Subsequently, the number of factors that emerge from the factor analysis is determined. For all outcome dimensions to be considered separable, there would have to be seven factors without overlaps. This is calculated with the help of the variance, a scree plot and a component matrix and displayed graphically (Backhaus et al., 2016, 397 f.). The principal axis factor analysis is used as the extraction method and the rotation method Varimax with Kaiser normalisation (Backhaus et al., 2016, p. 436). For the communalities 1 is used (Backhaus et al., 2016, p. 412).

Finally, the variables are tested for correlations and the result is summarised.

4.3 Qualitative Data

The qualitative data of this paper will answer the second research question and reveal other possible factors influencing the implementation and the dimensions of implementation. The used research method is a structured form for documenting the field notes, which were and will be filled in by the projects staff during each visit to one of the stations taking part in the project. The structured form was developed from the project and was only adopted for this work. For the purpose of this paper, all field notes for the Station of Oral and Maxillofacial Surgery will be collected for the while and post implementation time periods. From the other stations, only a summary of the field notes from each station and time period will be used. The summaries were made before the post-survey of this work and will be added by the summery of the Station of Oral and Maxillofacial Surgery field notes and evaluated.

The first step is to summarize all the field notes documented for the Station of Oral and Maxillofacial Surgery while and post implementation. The structured form for the field notes contains Likert scales and an additional field for notes for each question. The data for the time periods while and post will be collected in the scope of this work. The pre implementation data for the Station of Oral and Maxillofacial Surgery was collected and summarised by the project beforehand with Microsoft Excel. The Likert scales will be summarized with bar charts with Microsoft Excel and the additional notes will be analyzed with an online tool for analyzing qualitative data in form of word clouds. For this task the program WordClouds.com will be used. With this tool it is possible to create overviews over qualitative data with word clouds (WordClouds.com). The comments on the questions will be summarized for the creation of the word clouds.

In the second step the summarized field notes for the time periods while and post implementation will be added to the summery of all time periods of all stations. This summery will be analysed again with word clouds, bar charts and tables with the program WordClouds.com and Microsoft Excel.

4.4 Cumulation of factor analysis and qualitative results

The results from the factor analysis and the analysis of the qualitative data are then checked for possible commonalities, presumable correlations or contradictory statements, depending on the results.

5 Results

The results of the methods described in chapter 4 are explained below. Chapter 5.1 describes and explains the characteristics of the survey and the results of the factor analysis. The result contains the discriminatory power of the described dimensions. Chapter 5.2 explains the results of the qualitative data from the field notes as further factors influencing the process of implementation. In chapter 5.3, a possible connection between the results from chapter 5.1 and chapter 5.2 is described.

5.1 Factor analysis

Missing Data

The data set was examined for missing data and the missing data within the actual questionnaires collected was replaced using the expectation-maximisation algorithm. Completely missing questionnaires were not replaced. Missing demographic data were only replaced if they could be deduced from the input sequence of the questionnaires. This includes only the date of the questionnaire, details of the clinic and the station.

Sample description

The surveys at all three time periods took place in five departments and on a total of ten stations. In the first survey before the implementation of the HELP-5 questionnaire, 132 practitioners participated. Of these, 73 were nurses, 29 assistant doctors, 15 specialists and 1 psychooncologist. 14 did not give any information. Of these, 75.0 percent were female and 25,0 percent male. 132 practitioners participated in the first survey before the introduction of the HELP-5 questionnaire. 104 practitioners took part in the survey before, 32 practitioners during implementation and 26 practitioners after the implementation. A total of 58 (43.9 percent) of the practitioners from the Second Medical Clinic and Polyclinic, 25 (18.9 percent) the Department of Gynaecology, 12 (9.1 percent) Department of Radiotherapy and Radiation Oncology, 14 (10.6 percent) Department of Otolaryngology and 23 (17.4 percent) Department of Oral and Maxillofacial Surgery took part. These numbers are distributed among the individual stations as follows. A total of 14 (10.6 percent) practitioners from station C2A, 13 (9.8 percent) practitioners from station C5B, 12 (9.1 percent) practitioners from station C5A and 8 (6.1 percent) practitioners from station C4B took part. In the outpatient department, 7 (5.3 percent) practitioners participated, in C3A 12 (9.1 percent), in 5A 9 (6.8 percent), in 3A 5 (3.8 percent) and in Gyn 4H 20 (15.2 percent). 4 (3.0 percent) from the Gyn TK station and 24 (18.2 percent) from the MKG 3A station participated. The gender distribution among the practitioners was 25.0 percent male and 75.0 percent female. The

professions of the practitioners are as follows. 55.3 percent are nurses, 22.0 percent are assistant doctors, 11.4 percent are specialists, 0.8 percent are psychoncologists and 10.6 percent did not give any information about their profession. The average professional experience is 7.94 years (SD ±8.85).

Variable	*Mean±SD (range) / Percentage (No)*
Measuring periods	
Pre	(104)
While	(32)
Post	(25)
Departments	
II. Medical Clinic and Polyclinic	43.9% (58)
Department of Gynecology	18.9% (25)
Department of Radiotherapy and Radiation Oncology	9.1% (12)
Department of Otolaryngology	10.6% (14)
Department of Oral and Maxillofacial Surgery	17.4% (23)
Stations	
C2A (II. Med.)	10.6% (14)
C5B (II. Med.)	9.8% (13)
C5A (II. Med.)	9.1% (12)
C4B (II. Med.)	6.1% (8)
Ambulance (II. Med.)	5.3% (7)
C3A (Radiation)	9.1% (12)
5A (Otolaryngology)	6.8% (9)
3A (Otolaryngology)	3.8% (5)
Gyn 4H (Gynecology)	15.2% (20)
Gyn TK (Gynecology)	3.0% (4)
MKG 3A (Oral and Maxillofacial)	18.2% (24)
Not defined	3.0% (4)
Demographics	
Gender	
Female gender	75.0% (99)
Male gender	25.0% (33)
Profession	
Nurse	55.3% (73)
Assistant physician	22.0% (29)
Specialist	11.4% (15)
Psychooncologist	0.8% (1)
Not defined	10.6% (14)
Work experience	7.94±8.85
Not defined	32

Table 1: Sample description for the practitioners data set.

Summation scales

The sum scales of the respective implementation dimensions were first formed for the respective time period and then a mean value was formed from these in order to have a value for calculating the factor analysis and under the assumption that the time period has no influence on the discriminatory power of the dimensions. These summation scales for each dimension were used for further calculations in the explorative factor analysis.

Explorative Factor Analysis

To test the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was calculated. According to this, an MSA <0.5 is not suitable for factor analysis. An MSA ≥0.8 is desirable for a good data set. (Backhaus et al., 2016, p. 399). Table 2 shows that the value is 0.817. Accordingly, the data set is well suited for conducting the factor analysis.

Bartlett's Test of Sphericity checks whether the variables correlate in the survey population. A critical value of 0.05 is given. If the value is below 0.05, the correlation of the variables in the survey population is assumed (Backhaus et al., 2016, p. 397). Table 2 shows a value of 0.00 for Sig.. So it is confirmed that the factor analysis will provide significant results.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,817
Bartlett's Test of Sphericity	Approx. Chi-Square	120,715
	df	21
	Sig.	,000

Table 2: Factor analysis: KMO and Bartlett's Test.

In order to find out whether individual variables, i.e. dimensions, are suitable for factor analysis, communalities are used. The value in the *Extraction* column of Table 3 should be >0.5 for the variable to be considered suitable to explain more than half of the spread (Backhaus et al., 2016, p. 411). According to Table 3, the values of the variables Acceptability and *Appropriateness* are >0.8. The values of the variables *Adoption*, *Cost* and *Feasibility* are >0.6 and *Fidelity* just >0.5. Only the value of the variable *Penetration*, at 0.178, is far below 0.5 and is therefore not actually suitable for factor analysis. Nevertheless, the variable will be used for further calculations and will be taken into account again when discussing the results.

Communalities

	Initial	Extraction
Acceptability	1,000	,802
Adoption	1,000	,628
Cost	1,000	,611
Feasibility	1,000	,653
Fidelity	1,000	,569
Penetration	1,000	,178
Appropriateness	1,000	,842

Extraction Method: Principal Component Analysis.

Table 3: Factor analysis: Communalities.

Table 4 shows that only one component, 4.281, is greater than Eigenvalue 1. This shows that the factor analysis has only one component, i.e. one factor as a result. However, it can also be seen in Table 4 that another value of 0.978 is very close to Eigenvalue 1 and it should be considered whether this should be taken into account as a further factor.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,281	61,160	61,160	4,281	61,160	61,160
2	,978	13,977	75,137			
3	,521	7,444	82,581			
4	,496	7,088	89,669			
5	,370	5,280	94,950			
6	,266	3,794	98,744			
7	,088	1,256	100,000			

Extraction Method: Principal Component Analysis.

Table 4: Factor analysis: Total Variance Explained.

A similar result also shows the scree plot in Figure 8. The scree plot shows a high Eigenvalue with over 4 for 1 component number and a value for nearly 1 Eigenvalue for 2 component numbers. The scree plot result underlines the consideration to work with 2 instead of 1 component.

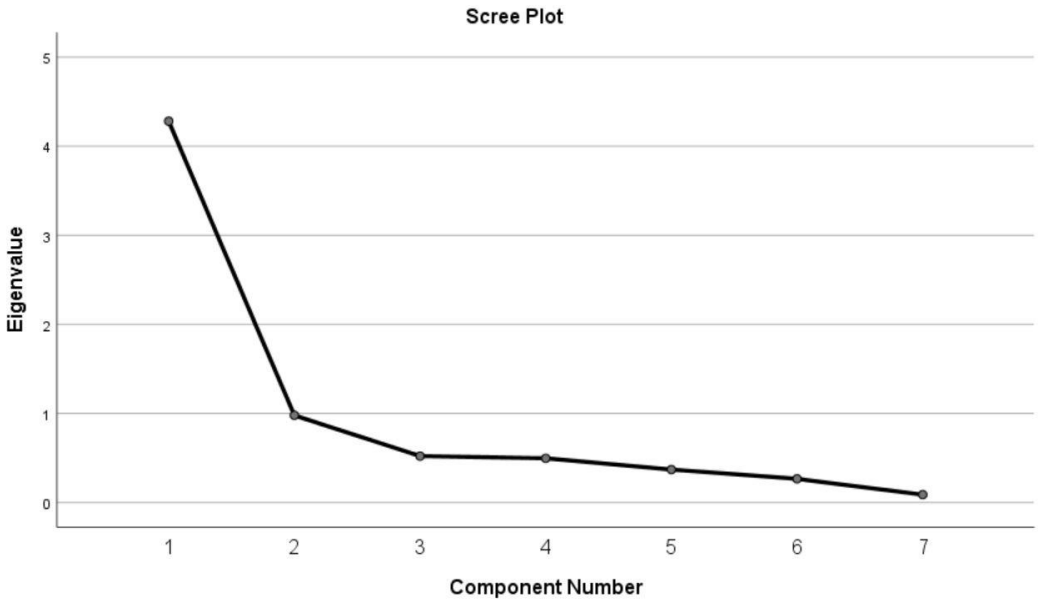

Figure 6: Factor analysis: Scree Plot.

The component matrix in Table 5 shows the list of all variables/dimensions and their assignment to the component. A variable is assigned to a factor starting from a value of 0.5 (Backhaus et al., 2016, p. 418). This is the case for all variables except the variable penetration with a value of 0.421. This was not suitable for a factor analysis from the outset. Therefore, either the result that all calculated implementation dimensions are not selective and are to be assigned to a factor/component and the dimension Penetration cannot be included or the factor analysis with a lower Eigenvalue must be recalculated.

Component Matrix[a]

	Component 1
Acceptability	,895
Adoption	,792
Cost	,781
Feasibility	,808
Fidelity	,754
Penetration	,421
Appropriateness	,918

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5: Factor analysis: Component Matrix

In addition to the results of the factor analysis, the dimensions were tested for their correlation to each other. In the first step, all variables were tested for normal distribution in order to determine the appropriate test for the correlations. Table 6 shows that the variables *Adoption*, *Feasibility* and *Fidelity* are normally distributed, as the values are distributed over 0.05 and the variables *Acceptability, Appropriateness, Cost* and *Penetration* are not. The values for significance of the Shapiro-Wilk test in Table 6 were used. For this reason, the Spearman test was chosen because it is suitable for non-normally distributed data (Fahrmeir et al., 2016, p. 133).

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Acceptability	,159	30	,051	,912	30	,017
Adoption	,141	30	,135	,968	30	,489
Appropriateness	,208	30	,002	,919	30	,025
Cost	,209	30	,002	,925	30	,037
Feasibility	,104	30	,200*	,954	30	,217
Fidelity	,133	30	,183	,955	30	,235
Penetration	,285	30	,000	,646	30	,000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 6: Tests of Normality

After performing the 2-tailed Spearman test, the following was found. The values in Table 7 show the variables *Acceptability Adoption, Appropriateness, Cost, Feasibility* and *Fidelity* all have a significant correlation with each other. The only variable to correlate slightly with *Penetration* is *Fidelity*.

Correlations

			Acceptability	Adoption	Appropriateness	Cost	Feasibility	Fidelity	Penetration
Spearman's rho	Acceptability	Correlation Coefficient	1,000	,519**	,707**	,570**	,618**	,584**	,117
		Sig. (2-tailed)	.	,003	,000	,001	,000	,000	,459
		N	42	31	42	30	30	42	42
	Adoption	Correlation Coefficient	,519**	1,000	,679**	,362**	,525**	,483**	,313
		Sig. (2-tailed)	,003	.	,000	,000	,000	,006	,086
		N	31	121	31	120	120	31	31
	Appropriateness	Correlation Coefficient	,707**	,679**	1,000	,635**	,633**	,500**	,088
		Sig. (2-tailed)	,000	,000	.	,000	,000	,001	,577
		N	42	31	42	30	30	42	42
	Cost	Correlation Coefficient	,570**	,362**	,635**	1,000	,555**	,401*	,259
		Sig. (2-tailed)	,001	,000	,000	.	,000	,028	,167
		N	30	120	30	120	120	30	30
	Feasibility	Correlation Coefficient	,618**	,525**	,633**	,555**	1,000	,448*	,333
		Sig. (2-tailed)	,000	,000	,000	,000	.	,013	,072
		N	30	120	30	120	120	30	30
	Fidelity	Correlation Coefficient	,584**	,483**	,500**	,401*	,448*	1,000	,319*
		Sig. (2-tailed)	,000	,006	,001	,028	,013	.	,040
		N	42	31	42	30	30	42	42
	Penetration	Correlation Coefficient	,117	,313	,088	,259	,333	,319*	1,000
		Sig. (2-tailed)	,459	,086	,577	,167	,072	,040	.
		N	42	31	42	30	30	42	42

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7: Correlations.

Since the factor analysis revealed only one component and that the dimension *Penetration* could not be used, the values of the variances in Table 4 were looked at again. Since the value of the second component is 0.978, just below 1.0, it was decided to carry out the factor analysis again with a lowered Eigenvalue of 1 to 0.977, in order to possibly find a second component.

Table 8 shows unchanged values for the KMO and Bartlett's Test. Therefore the data set is still suitable for a factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,817
Bartlett's Test of Sphericity	Approx. Chi-Square	120,715
	df	21
	Sig.	,000

Table 8: Factor analysis 2 : KMO and Bartlett's Test.

According to Table 9, the values of the variables Acceptability and *Appropriateness* are still >0.8. The values of the variables *Adoption*, *Cost* and *Feasibility* are still >0.6 and *Fidelity*

with the value 0.681 too. The value of the variable *Penetration*, has a very high value of 0,906 and is now suitable for a factor analysis.

Communalities

	Initial	Extraction
Acceptability	1,000	,829
Adoption	1,000	,628
Cost	1,000	,674
Feasibility	1,000	,682
Fidelity	1,000	,681
Penetration	1,000	,906
Appropriateness	1,000	,860

Extraction Method: Principal Component Analysis.

Table 9: Factor analysis 2: Communalities.

A variable is assigned to a factor starting from a value of 0.5 (Backhaus et al., 2016, p. 418). For this new calculation the result includes two components. The variables *Acceptability, Adoption, Cost, Feasibility, Fidelity* and *Appropriateness* are assigned to the first component/factor and *Penetration* to the second component/factor.

Component Matrix[a]

	Component	
	1	2
Acceptability	,895	-,166
Adoption	,792	-,008
Cost	,781	-,252
Feasibility	,808	-,170
Fidelity	,754	,335
Penetration	,421	,853
Appropriateness	,918	-,134

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Table 10: Factor analysis 2: Component Matrix

The rotated component matrix in Table 11 does show a more clear result concerning the affiliation of the dimensions to the components except for *Fidelity*. This variable has values >0.5 for both components und can not be assigned to only one component. This results overlaps with the result of the correlation test. The slight correlation between *Fidelty* and *Penetration* can also be observed here.

Rotated Component Matrix[a]

	Component	
	1	2
Acceptability	,892	,183
Adoption	,737	,290
Cost	,819	,060
Feasibility	,813	,146
Fidelity	,573	,594
Penetration	,070	,949
Appropriateness	,900	,221

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 11: Factor analysis 2: Rotated Component Matrix.

The result of the two factor analyses does not show any discriminatory power of the implementation dimensions, because only one component was formed. Only by slightly lowering the Eigenvalue was it possible to find out another component. Penetration can only be defined as an independent dimension under these circumstances.

5.2 Qualitative Data

In the following, the field notes collected while and post implementation at the MKG from 28.04.2021 to 18.08.2021 for the survey are evaluated and summarised in order to add them to the overview with all summarised field notes of all participating stations for further evaluation. The data for the time periods while and post were collected in the scope of this work. The pre data for the MKG was collected and summarised by the project beforehand.

5.2.1 Field Notes MKG

The field notes were collected at the MKG from 28.04.2021 to 08.07.2021 for the survey during the implementation and from 14.07.2021 to 18.08.2021 post implementation.

The result of the field notes is presented in detail below for each question on the survey form (see Appendix D), one after the other, with the help of bar charts for the Likert scales and word clouds for the comments on the respective questions. The results are then summarised and then inserted into Table 2 for each question and time period. The summarised comments on the questions are used to create the word clouds (see Appendix E). This summary becomes part of the overall overview of all stations and time periods in the table (see Appendix F) of the evaluation in chapter 5.2.2.

During the implementation phase, 12 visits to the station were planned, 5 of which were cancelled for various reasons. Monitoring after the implementation phase was planned for 6 visits, 2 of which were cancelled. For the sake of completeness, this missing data will be included in the presentation of the results, but will not be part of the analysis. All other missing data, on the other hand, will be included in the analysis. The reasons for the cancelled visits are described under ***Other comments and observations*** in this chapter.

The following legend is necessary for the following evaluation of the field notes:

☺: positive; 😐: mediocre; ☹: negative; ☒:no data; ✓: yes; 🗵 :no; ○: no data

In the word clouds the words/sentences are rated with the colours red=negative, yellow=mediocre and green=positive to make the evaluation clearer.

1. How many times have you observed the Help-5 being issued?

The field notes showed that on average 1 questionnaire during implementation and 1 questionnaire was handed out to patients after the implementation phase by practitioners, during

the station visit and follow-up. No word cloud is necessary for this question. As a note, it was only noted for both time periods that all noted distributed questionnaires were collected exclusively in accompaniment of the project.

2. How do the patients react to the Help-5?

The evaluation of the Likert scale for the observations during the implementation showed predominantly positive reactions from the patients for both periods. Figure 8 shows that 5 responses were missing during implementation and 2 after implementation.

Summary while implementation: ☺

Summary post implementation: ☺

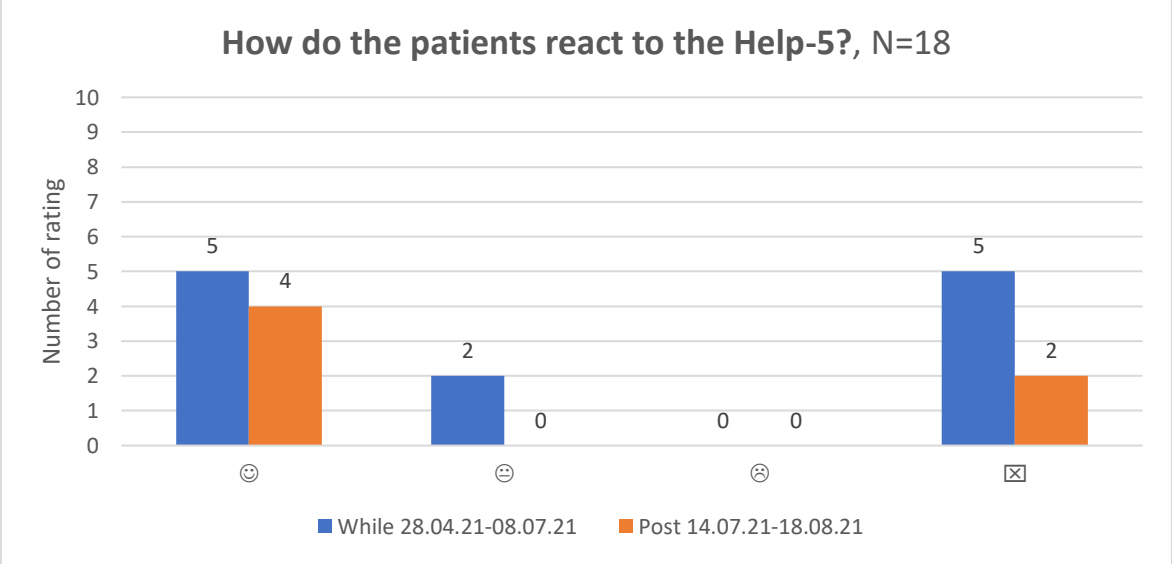

Figure 7: Field Notes MKG. Question 2: How do the patients react to the Help-5?.

Figure 9 shows more negative comments regarding the conditions and capabilities of the patients. Figure 10 only mentions one comment, that the survey could not be done.

Summary while implementation: Appeared strained, difficulty to speak, joyful participation, difficulty to hear

Summary post implementation: -

Figure 8: Field Notes MKG. Word cloud question 2: While implementation.

Figure 9: Field Notes MKG. Word cloud question 2: Post implementation.

3. How do the practitioners react to the Help-5?

The evaluation of the Likert scale for the observations during the implementation showed predominantly positive reactions from the practitioner for both periods. Figure 11 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: ☺

Summary post implementation: ☺

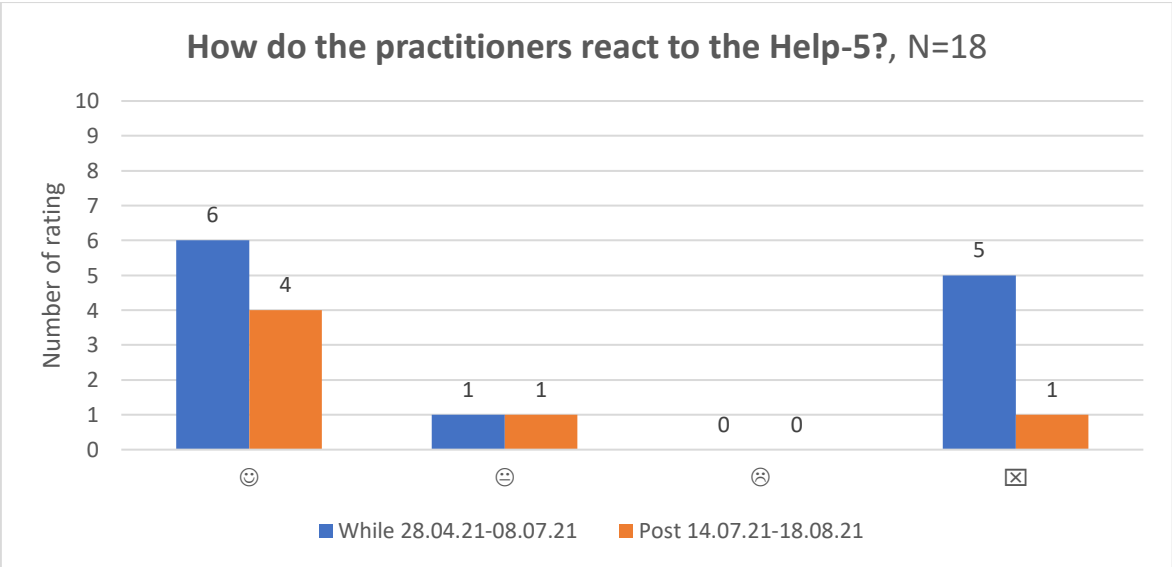

Figure 10: Field Notes MKG. Question 3: How do the practitioners react to the Help-5?.

Figure 12 shows more positive comments regarding the reactions of the participants. Figure 13 shows more positive comments regarding the reactions of the participants.

Summary while implementation: Very motivated, extensive conversation with patient, not motivated, indicated to get back to patient later

Summary post implementation: On own initiative, resentment due to second accompany, positive

Figure 11: Field Notes MKG. Word cloud question 3: While implementation.

Figure 12: Field Notes MKG. Word cloud question 3: Post implementation.

4. Do the practitioners seem confident in handling the software?

For both periods, there were mixed results regarding the handling of the software. The values differ by only 1 in each period. Figure 14 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: 😐

Summary post implementation: ☺☹

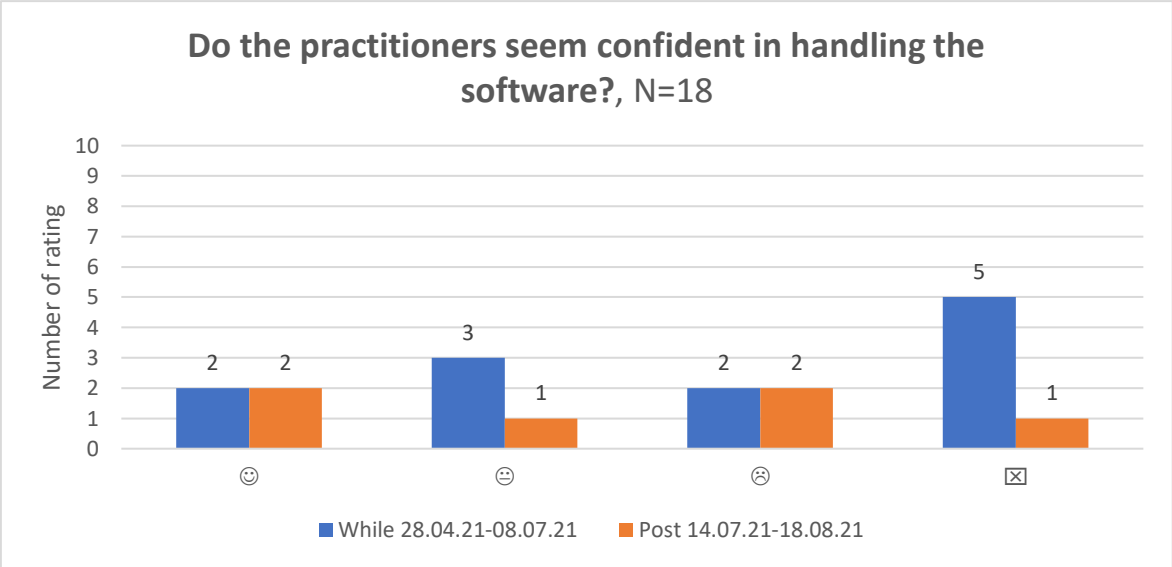

Figure 13: Field Notes MKG. Question

The comments during implementation shown in Figure 15 mirror the results from Figure 14. The confidence of handling the software is present in all expressions. The comments after implementation shown in Figure 16 show a more negative result.

Summary while implementation: Partially, never done

Summary post implementation: Never done, mostly

Figure 14: Field Notes MKG. Word cloud question 4: While implementation.

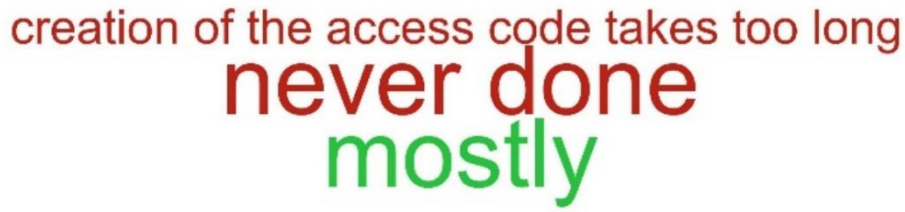

Figure 15: Field Notes MKG. Word cloud question 4: Post implementation.

5. Is the responsibility for passing on the tablet distributed among several people?

For both periods it is stated that the responsibility for passing on the tablet is distributed among several people. Figure 17 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: ✓

Summary post implementation: ✓

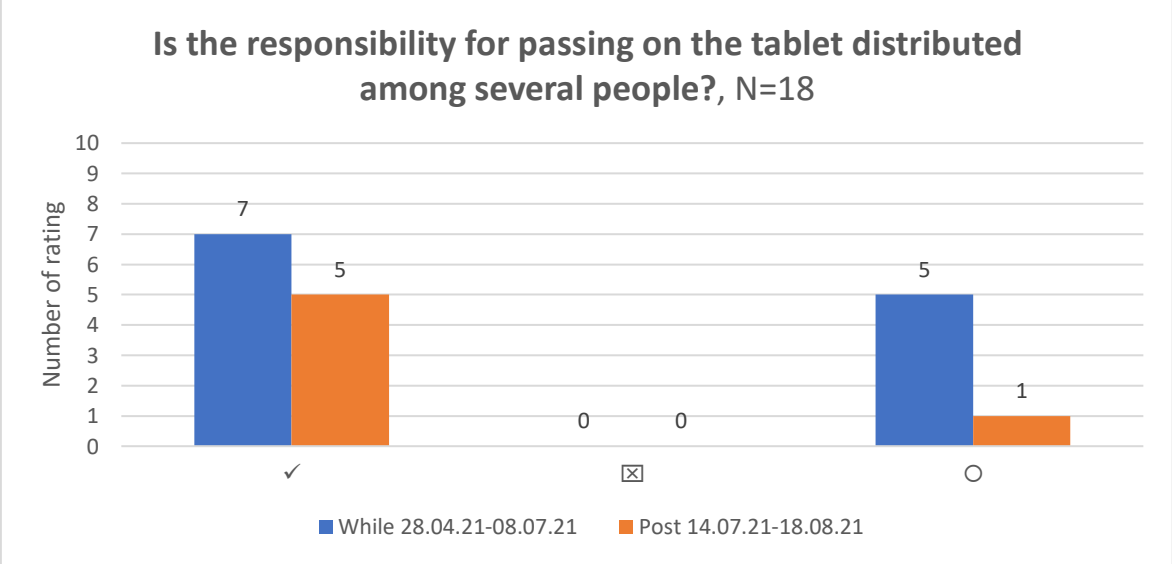

Figure 16: Field Notes MKG. Question 5: Is the responsibility for passing on the tablet distributed among several people?.

For both periods, it is stated that a different practitioner was assigned for each Wednesday. In addition, Figure 18 for the implementation phase indicates that the documents are centrally placed. Figure 19 indicates for the post-implementation period that the documents have now been placed decentral.

Summary while implementation: Questionnaire placed central, one practitioner every Wednesday.
Summary post implementation: One practitioner every Wednesday, questionnaire placed decentral.

Figure 17: Field Notes MKG. Word cloud question 5: While implementation.

Figure 18: Field Notes MKG. Word cloud question 5: Post implementation.

6. **Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?**

For both periods, it is stated that the inclusion and exclusion criteria for patients is clearly defined. Figure 20 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: ✓

Summary post implementation: ✓

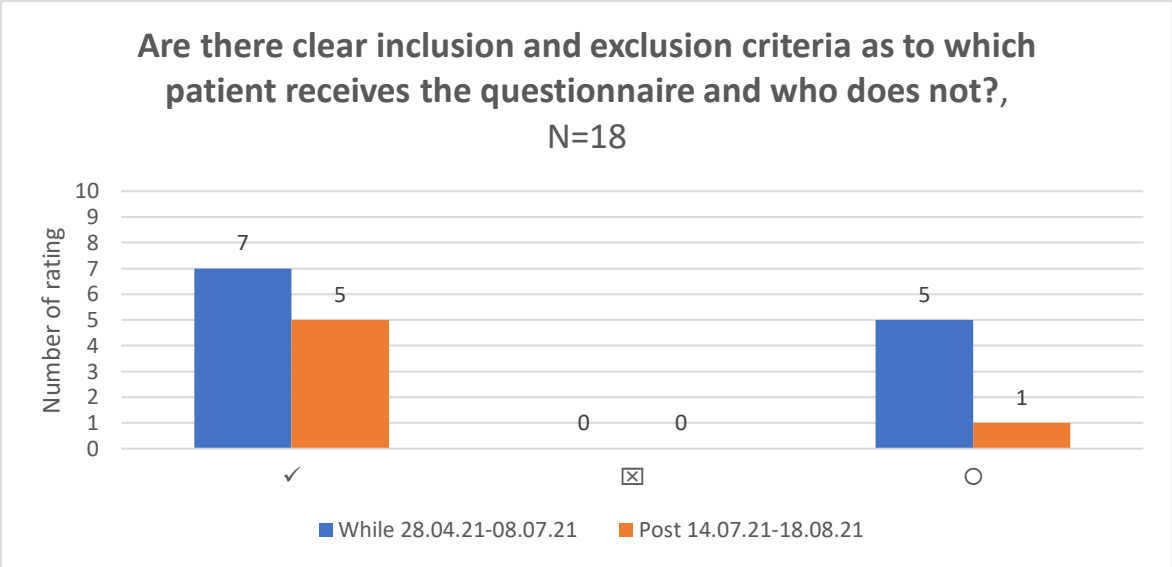

Figure 19: Field Notes MKG. Question 6: Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?.

The Figure 21 and Figure 22 indicates the inclusion criteria for both time periods. During implementation, decisions are made according to illness, personal access and health status, and after implementation according to cognitive ability, illness and responsiveness.

Summary while implementation: According to illness, according to personal access, according to state of health.

Summary post implementation: According to illness, according to responsiveness.

Figure 20: Field Notes MKG. Word cloud question 6: While implementation.

Figure 21: Field Notes MKG. Word cloud question 6: Post implementation.

7. What is the general mood like on the unit / ambulance with regard to the Help-5?

The general mood of the practitioners was predominantly positive at both points in time. Figure 23 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: ☺

Summary post implementation: ☺

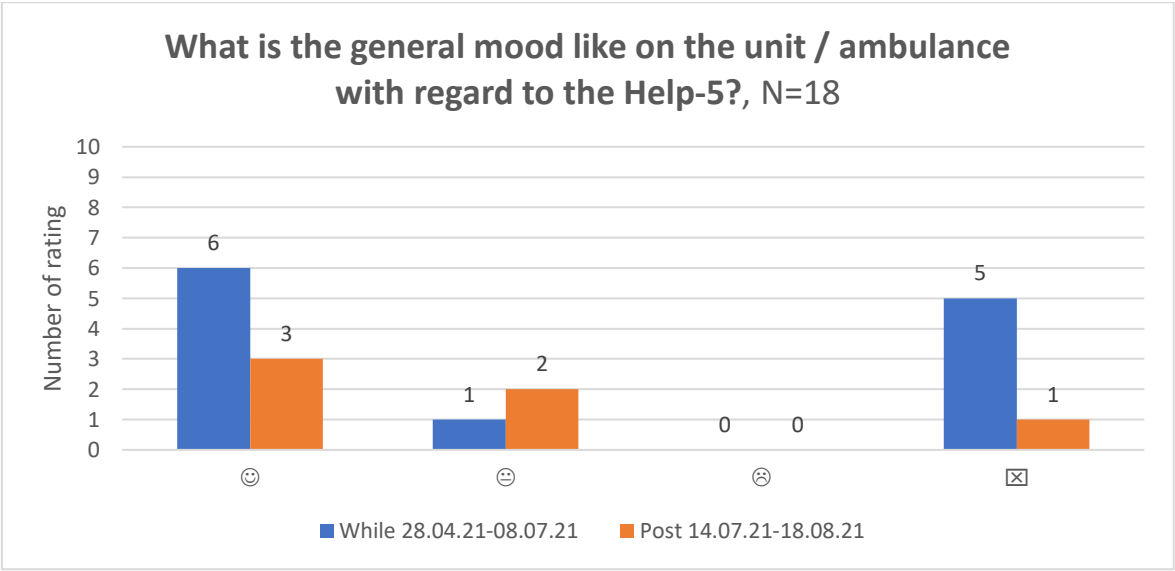

Figure 22: Field Notes MKG. Question 7: What is the general mood like on the unit / ambulance with regard to the Help-5?.

However, the comments on the respective periods in Figure 24 and Figure 25 show different mood expressions.

Summary while implementation: Positive, compulsory appointment

Summary post implementation: Not motivated, motivated, compulsory appointment, mood fluctuates, nuisance, positive

Figure 23: Field Notes MKG. Word cloud question 7: While implementation.

Figure 24: Field Notes MKG. Word cloud question 7: Post implementation.

8. What is your own assessment of how well the introduction of Help-5 is going?

Overall, the introduction of the Help-5 questionnaire runs mediocre during and after the implementation. Figure 26 shows that 5 responses were missing during implementation and 1 after implementation.

Summary while implementation: 😐

Summary post implementation: 😐

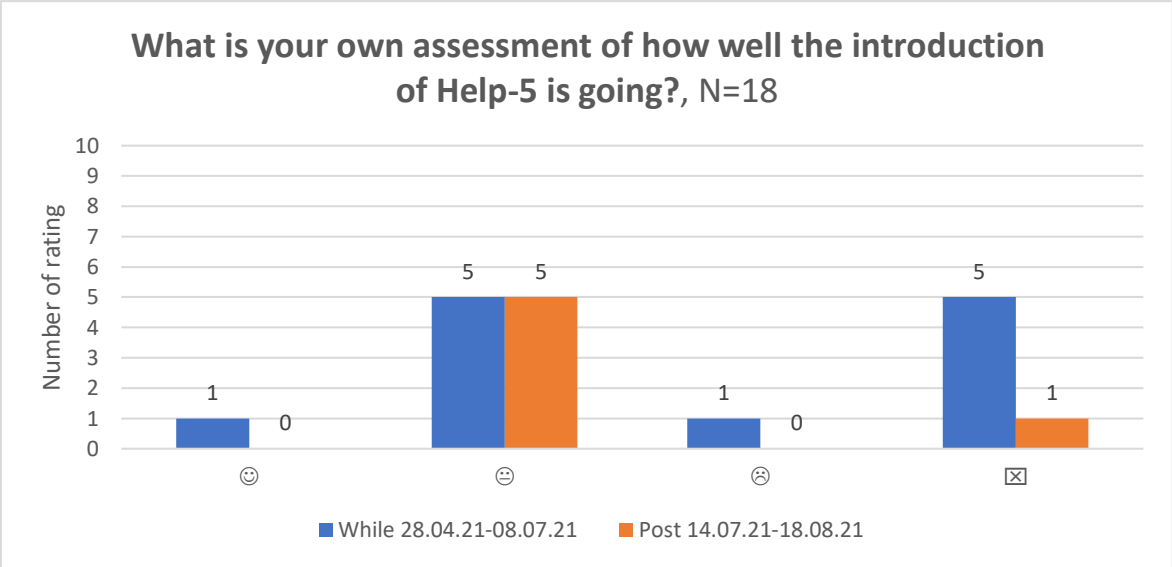

Figure 25: Field Notes MKG. Question 8: What is your own assessment of how well the introduction of Help-5 is going?.

The comments at both periods show that predominantly negative comments were mentioned about the circumstances of the implementation. These include not enough questionnaires being handed out during implementation and after implementation as well as IT issues shown in Figure 27 and Figure 28.

Summary while implementation: More needed, necessity of repeating not present motivated.

Summary post implementation: Own initiative, no initiative.

Figure 26: Field Notes MKG. Word cloud question 8: While implementation.

Figure 27: Field Notes MKG. Word cloud question 8: Post implementation.

9. Other comments and observations

Due to the size and length of the *other comments and observations* section, the responses were analysed and summarised in one text.

The following comments and observations were documented during the implementation. Five times the visit to the station was not possible. Reasons for this were illness of the visiting practitioner, understaffing on the station, two times time constraints on the station, an IT issue and unsuitable visiting time. During the monitoring on the station, IT issues were noticed on four visits, which prevented or made it difficult to conduct the interview with the patient. During one visit it was noted that the patient was pleased with the interest in her well-being and the practitioner was pleased with the positive feedback from the patient. At another visit, it was noted that the patient's interview was made difficult by the practitioner's literacy and language skills. In addition, an incident was described in which a patient received information about his further treatment as a positive side effect through the conversational approach offered by the Help-5 questionnaire. This brought positive news to the patient and relieved him emotionally.

Summary: lack of time, IT issues, positive patient encounter, communication problem, positive practitioner encounter, understaffing

During the scheduled six visits after the implementation phase, one visit was cancelled due to lack of time on the station. During another visit, no patient could be interviewed due to IT issues and during the last visit, it was documented that the documents and the iPad with the questionnaire were placed decentral, making access difficult.

Summary: IT issues, positive patient encounter, decentral placed equipment

In Table 12 are the results of all questions summarized.

Station MKG	**Summary of time periods**	
Questions	While	Post
How many times have you observed the Help-5 being issued?	1	1
Comments	Accompanied	Accompanied
How do the practitioners react to the Help-5?	☺	☺
Comments	Appeared strained, difficulty to speak, joyful participation, difficulty to hear	
How do the practitioners react to the Help-5?	☺	☺
Comments	Very motivated, extensive conversation with patient, not motivated, indicated to get back to patient later	On own initiative, resentment due to second accompany, positive
Do the practitioners seem confident in handling the software?	😐	☺☹
Comments	Partially, never done	Never done, mostly
Is the responsibility for passing on the tablet distributed among several people?	✓	✓
Comments	Questionnaire placed central, one practitioner every Wednesday	One practitioner every Wednesday, questionnaire placed decentral
Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?	✓	✓
Comments	According to illness, according to personal access, according to state of health	According to illness, according to responsiveness
What is the general mood like on the unit / ambulance with regard to the Help-5?	☺	☺

Comments	Positive, compulsory appointment	Not motivated, motivated, compulsory appointment, mood fluctuates, nuisance, positive
What is your own assessment of how well the introduction of Help-5 is going?	😐	😐
Comments	More needed, necessity of repeating not present motivated	Own initiative, no initiative
Other comments and observations	lack of time, IT issues, positive patient encounter, communication problem, positive practitioner encounter, understaffing	IT issues, positive patient encounter, decentral placed equipment

Table 12: Summary of the field notes of the MKG.

The results in Table 12 were added to the table of all field notes (see Appendix F). This is now complete and the result of this is discussed in chapter 5.2.2.

5.2.2 Analysis of the field notes of all stations

The result of the field notes is presented in detail below for each question on the survey form (see Appendix D), one after the other, with the help of bar charts for the Likert scales and word clouds for the comments on the respective questions.

The following legend is necessary for the following evaluation of the field notes:

☺: positive; 😐: mediocre; ☹: negative; ☒:no data; ✓: yes; 🗹 :no; ○: no data

In the word clouds the words/sentences are rated with the colours red=negative, yellow=mediocre and green=positive to make the evaluation clearer.

1. How many times have you observed the HELP-5 being issued?

Field notes revealed that an average of 2.1, rounded 2 questionnaires were administered during station visits prior to the actual implementation phase on all stations. During implementation, an average of 3 questionnaires were observed to be handed out. For one station, no data is available on this because no implementation took place. During the visits to the station after the implementation phase, an average of 2.6 questionnaires, rounded 3 questionnaires, were handed out to patients. No data is available for 3 stations because no field notes were documented after the implementation.

The Figures 29-31 show different amounts of questionnaires distributed.

Summary pre implementation: Rare, 3-10 per day, distributes sometimes, 5-6 patients in one week, hand out some on other days too, regularly in late shift, numbers variate, start 10/30, 10 per day.

Summary while implementation: 10 per day, 3-10 per day, hand out some on other days too, distribute regularly, accompanied.

Summary post implementation: 10 per day, 3-10 per day, hand out some on other days too, distribute regularly, accompanied.

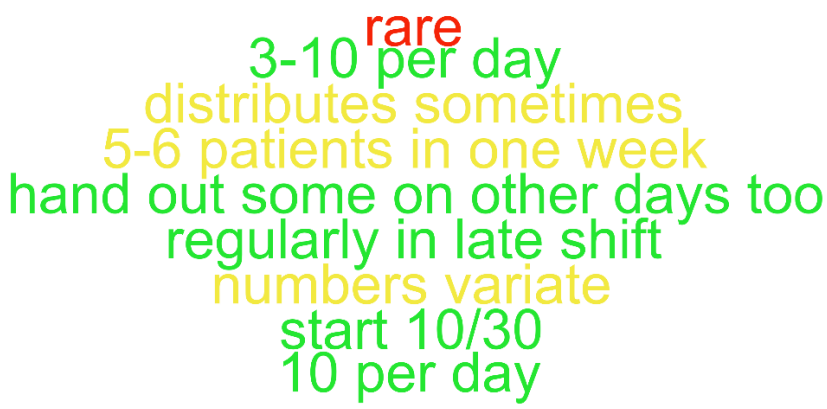

Figure 28: Field Notes all stations. Word cloud question 1: Pre implementation.

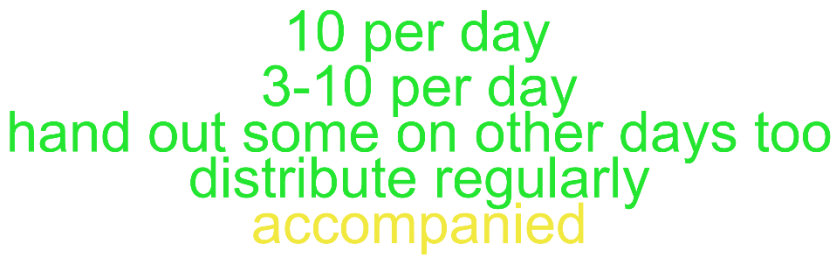

Figure 29: Field Notes all stations. Word cloud question 1: While implementation.

Figure 30: Field Notes all stations. Word cloud question 1: Post implementation.

2. How do the patients react to the Help-5?

The evaluation of the Likert scale for the observations during the implementation showed predominantly positive reactions from the patients for all periods. Figure 32 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: ☺

Summary while implementation: ☺

Summary post implementation: ☺

.

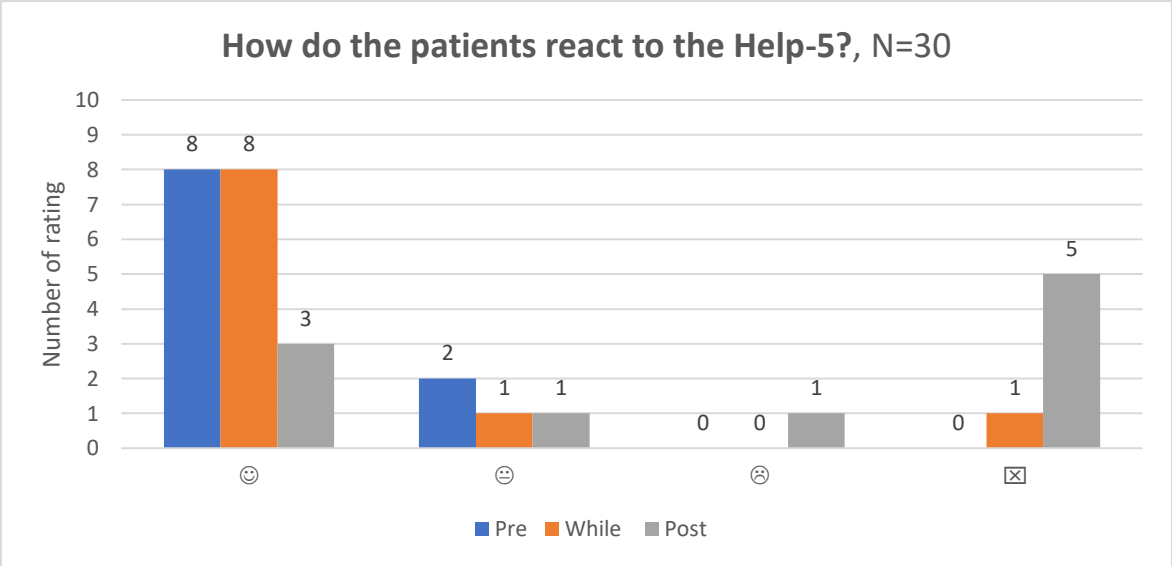

Figure 31: Field Notes all stations. Question 2: How do the patients react to the Help-5?.

Figure 33 and Figure 34 show negative and positive comments regarding the reactions, conditions and capabilities of the patients. Figure 35 only mentions that the number of patients who want to participate decreases.

Summary pre implementation: Positive, surprised, to many questionnaires, good according to nurses, urge to play with tablet, very interested.

Summary while implementation: Surprised, easy to handle, difficulty to hear, joyful participation, curious and willingly, difficulty to speak, appeared strained, sceptical.

Summary post implementation: Decrease of willing patients

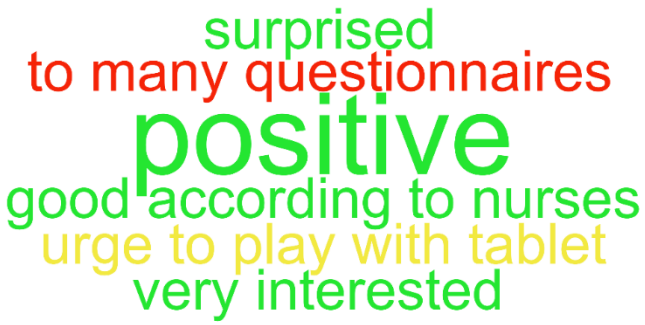

Figure 32: Field Notes all stations. Word cloud question 2: Pre implementation.

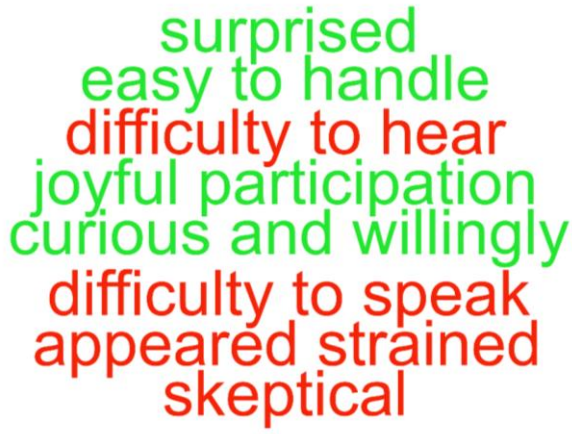

Figure 33: Field Notes all stations. Word cloud question 2: While implementation.

Figure 34: Field Notes all stations. Word cloud question 2: Post implementation.

3. How do the practitioners react to the Help-5?

The evaluation of the Likert scale for the observations during the implementation showed predominantly positive reactions from the practitioner for all periods. Figure 36 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: ☺

Summary while implementation: ☺

Summary post implementation: ☺

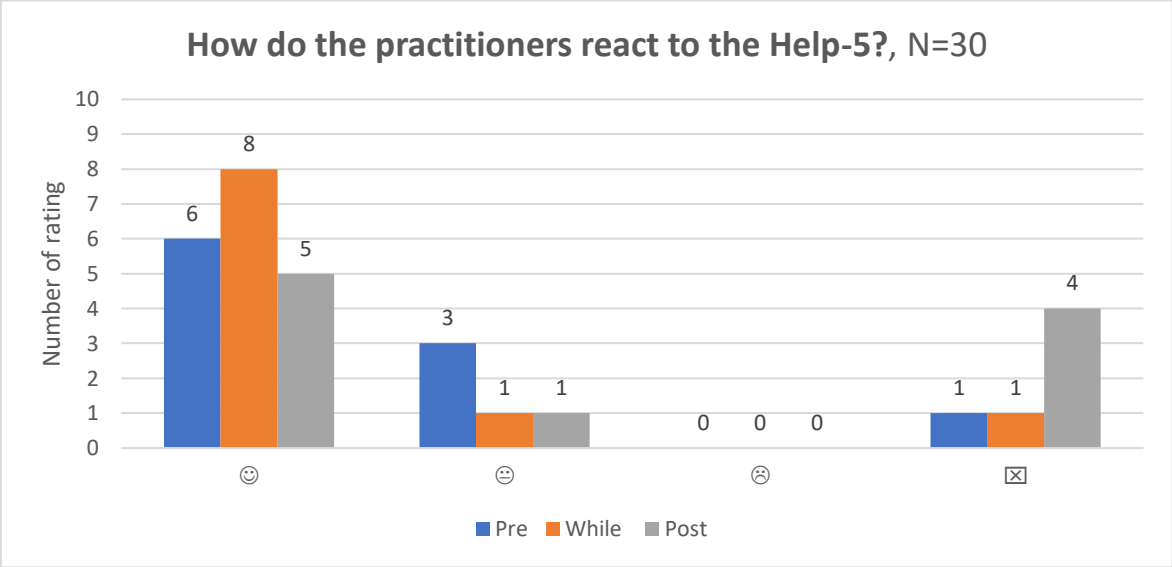

Figure 35: Field Notes all stations. Word cloud question 3: How do the practitioners react to the Help-5?.

For the pre implementation phase shows Figure 37, next to other comments staff shortage is a bigger problem. Figure 38 shows more positive comments regarding the reactions of the participants while implementation. The Figure 39 shows more positive comments regarding the reactions of the participants.

Summary pre Implementation: Staff shortage, positive reaction, specified as compulsory task, god after explaining project again, good until decrease of capacity, developed a good process, no time.

Summary while implementation: Not motivated, good questionnaire, extensive conversation with patient, results are discussed directly with doctor, indicated to get back to patient later, very motivated, are trying.

Summary post implementation: On own initiative, resentment due to second accompany, positive.

Figure 36: Field Notes all stations. Word cloud question 3: Pre implementation.

Figure 37: Field Notes all stations. Word cloud question 3: While implementation.

Figure 38: Field Notes all stations. Word cloud question 3: Post implementation.

4. Do the practitioners seem confident in handling the software?

For all time periods are the results regarding the handling of the software mostly positive. Figure 40 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: ☺

Summary while implementation: ☺

Summary post implementation: ☺

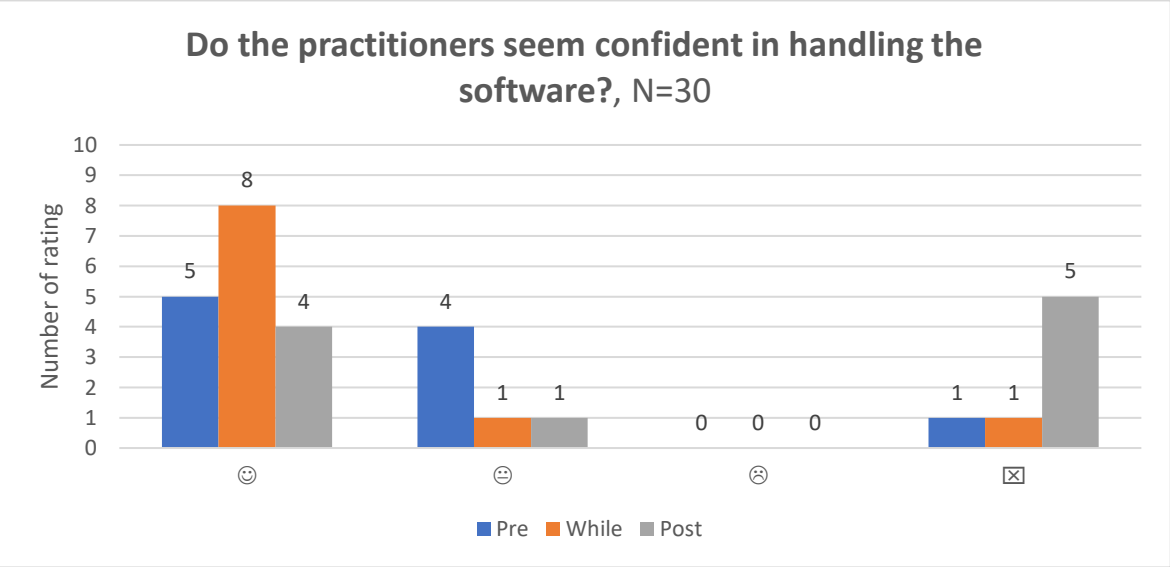

Figure 39: : Field Notes all stations. Word cloud question 4: Do the practitioners seem confident in handling the software?.

Figures 41-43 for all time periods show comments that indicate that all levels of knowledge about handling the software are represented.

Summary pre Implementation: First with instructions, long code validity is positive, not used enough, good.

Summary while implementation: Partially, process development increases, never done.

Summary post implementation: Never done, mostly.

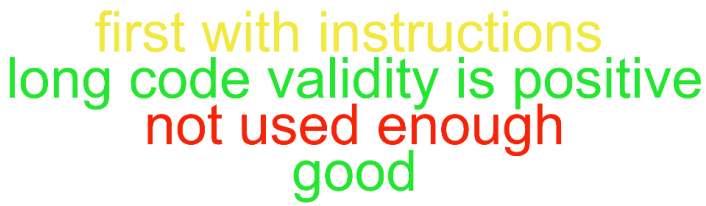

Figure 40: Field Notes all stations. Word cloud question 4: Pre implementation.

Figure 41: Field Notes all stations. Word cloud question 4: While implementation.

Figure 42: Field Notes all stations. Word cloud question4: Post implementation.

5. Is the responsibility for passing on the tablet distributed among several people?

Before implementation, it was not clearly defined in most wards how the responsibility for passing on the tablet is distributed. During and after implementation, this is improving.. Figure 44 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: ☒

Summary while implementation: ✓

Summary post implementation: ✓

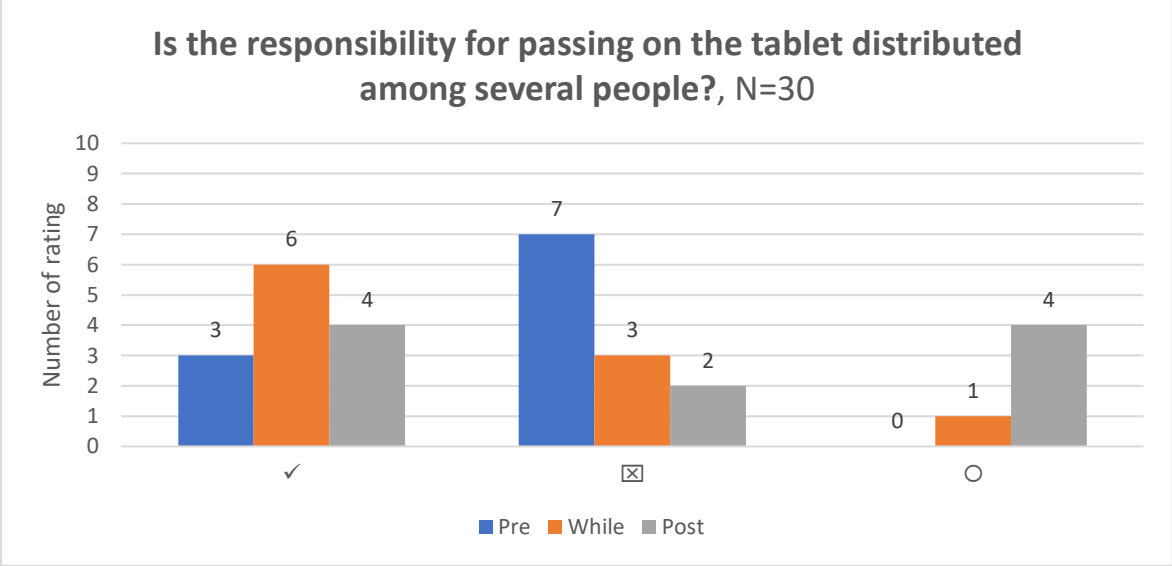

Figure 43: Field Notes all stations. Word cloud question 5: Is the responsibility for passing on the tablet distributed among several people?.

As shown in Figure 44, there is a lack of clarity on responsibility before implementation and this improves during implementation. Figure 46 contains only positive comments. Figure 47 indicates for the post implementation period that the documents have now been placed decentral.

Summary pre Implementation: One person, secretary, not yet maybe 2 nurses, no one directly specified, all for blood withdrawl, 3 medical assistants.

Summary while implementation: One person, secretary, staff distributes them, one practitioner every Wednesday, questionnaire placed central, nurses.

Summary post implementation: Questionnaire placed decentral, one practitioner every Wednesday.

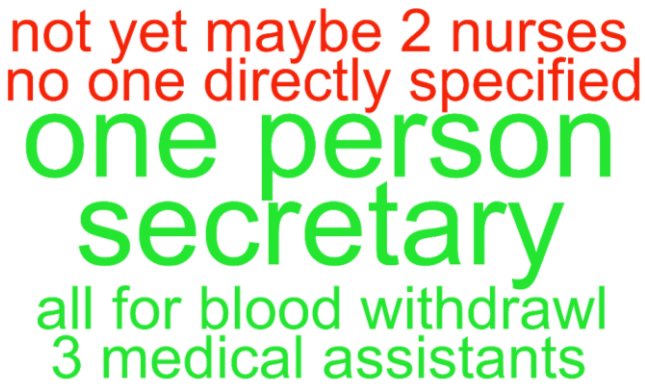

Figure 44: Field Notes all stations. Word cloud question 5: Pre implementation.

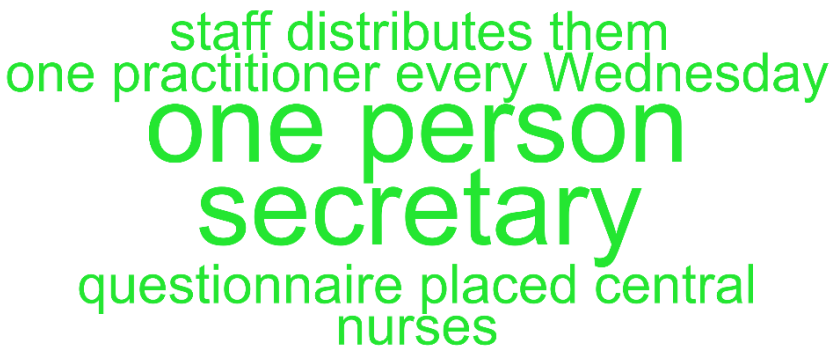

Figure 45: Field Notes all stations. Word cloud question 5: While implementation.

Figure 46: Field Notes all stations. Word cloud question 5: Post implementation.

6. **Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?**

For all time periods, it is stated that the inclusion and exclusion criteria for patients is clearly defined. Figure 48 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: ✓

Summary while implementation: ✓

Summary post implementation: ✓

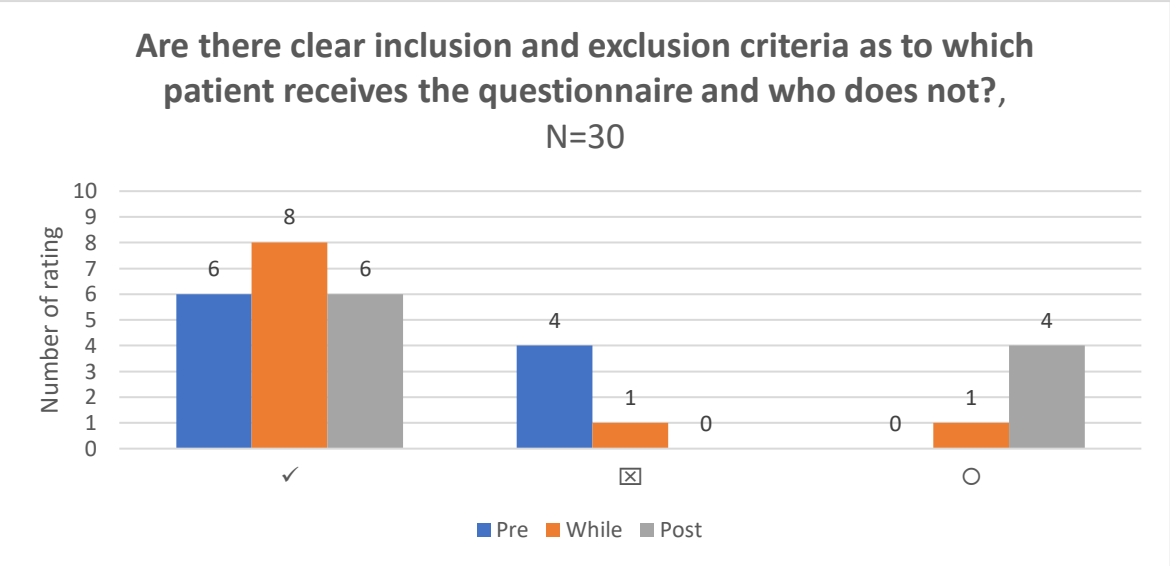

Figure 47: Field Notes all stations. Word cloud question 6: Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?.

The Figure 21 and Figure 22 indicates the inclusion criteria for both time periods. During implementation, decisions are made according to illness, personal access and health status, and after implementation according to cognitive ability, illness and responsiveness.

Summary pre Implementation: Age, language, cognitive.

Summary while implementation: Language, according to illness, cognitive, according to personal access, according to state of health, open minded, age.

Summary post implementation: According to responsiveness, according to illness.

Figure 48: Field Notes all stations. Word cloud question 6: Pre implementation.

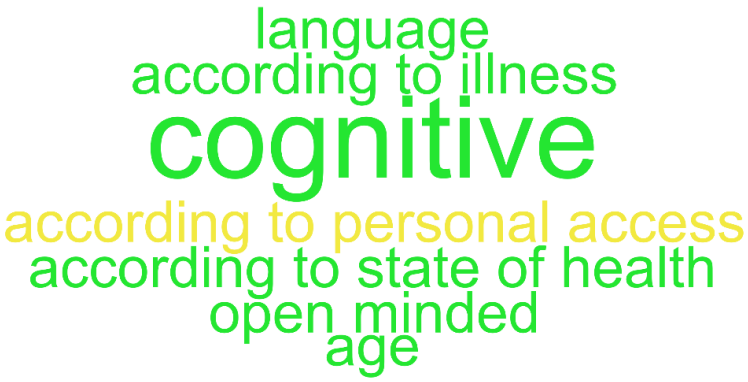

Figure 49: Field Notes all stations. Word cloud question 6: While implementation.

Figure 50: Field Notes all stations. Word cloud question 6: Post implementation.

7. What is the general mood like on the unit / ambulance with regard to the Help-5?

The general mood of the practitioners was predominantly positive while and after implementation. Before implementation, a mediocre mood prevailed. Figure 52 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: 😐

Summary while implementation: ☺

Summary post implementation: ☺

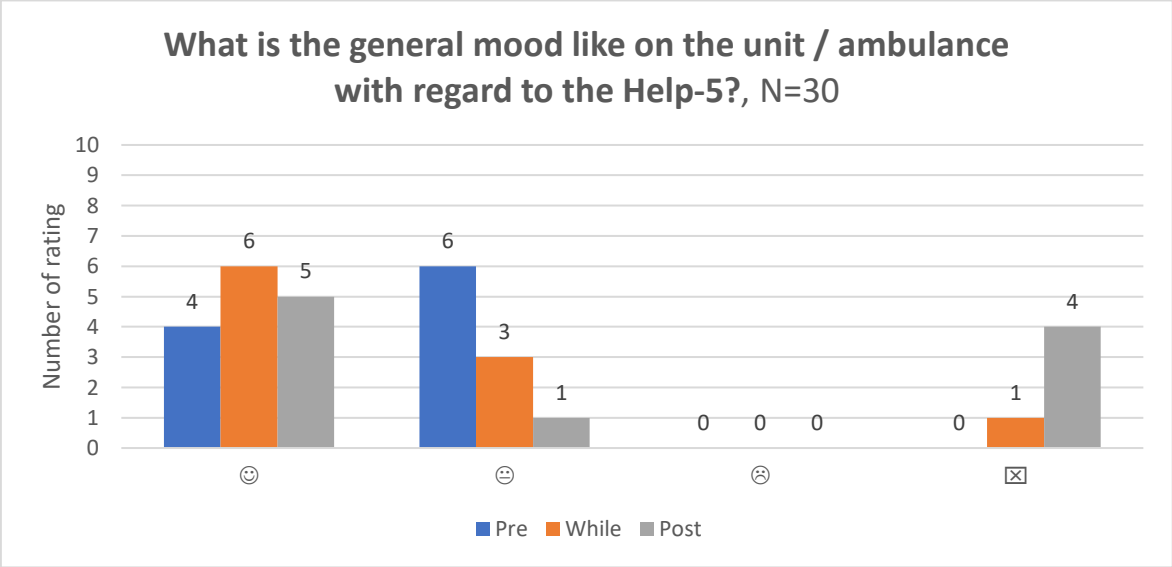

Figure 51: Field Notes all stations. Word cloud question 7: What is the general mood like on the unit / ambulance with regard to the Help-5?.

However, the comments on the respective periods in Figure 53, Figure 54 and Figure 55 show different mood expressions.

Summary pre Implementation: Not top priority, no incentive for implementation, head nurse has positive attitude, head nurse wants more participating nurses, time consuming process development, want to try but staff shortage, good routine.

Summary while implementation: Compulsory appointment, mediocre mood of responsible persons, process for results are missing, positive.

Summary post implementation: Positive, mood fluctuates, compulsory appointment, not motivated, nuisance.

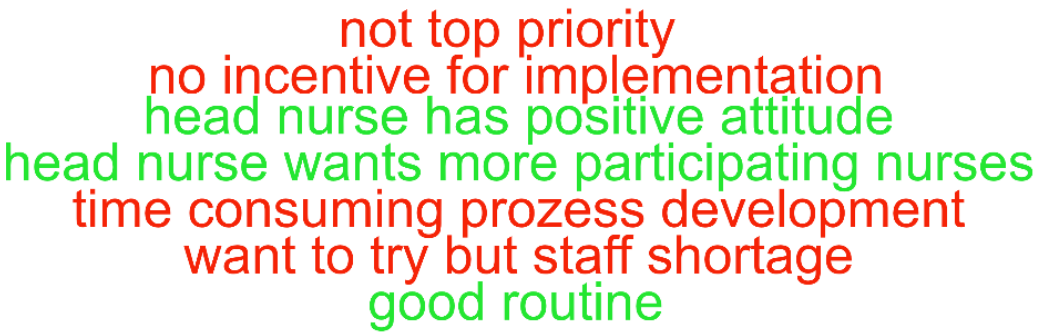

Figure 52: Field Notes all stations. Word cloud question 7: Pre implementation.

Figure 53: Field Notes all stations. Word cloud question 7: While implementation.

Figure 54: Field Notes all stations. Word cloud question 1: Post implementation.

8. What is your own assessment of how well the introduction of Help-5 is going?

Overall, the introduction of the Help-5 questionnaire runs mediocre during and after the implementation. Figure 56 shows that 1 response is missing during implementation and 4 are after the implementation.

Summary post implementation: 😐

Summary while implementation: ☺

Summary post implementation: ☺

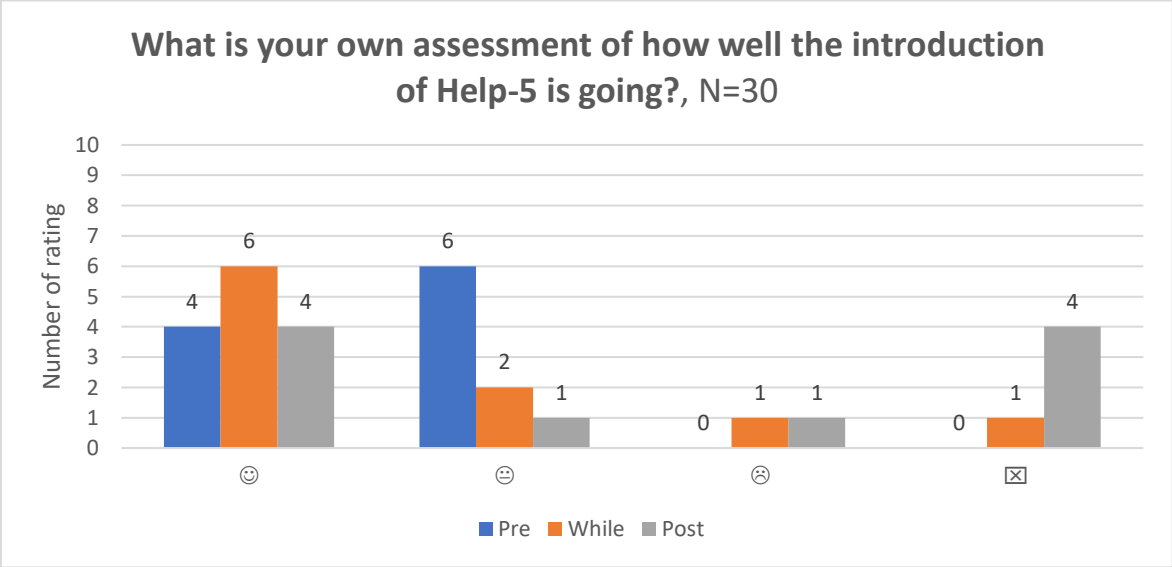

Figure 55: Field Notes all stations. Word cloud question 8: What is your own assessment of how well the introduction of Help-5 is going?.

The comments shown in Figure 57-59 show an overall negative development for the implementation. This is a contrast to the information according to Figure 56.

Summary pre Implementation: Change is not observed, mediocre until cancellation, implementation only for project participation, head nurse not motivated.

Summary while implementation: More needed, doctors not involved, necessity of repeating not present, project participation because of implementation evaluation, survey only with instruction and excuses, really good process, motivated.

Summary post implementation: Own initiative, no initiative, only for evaluation.

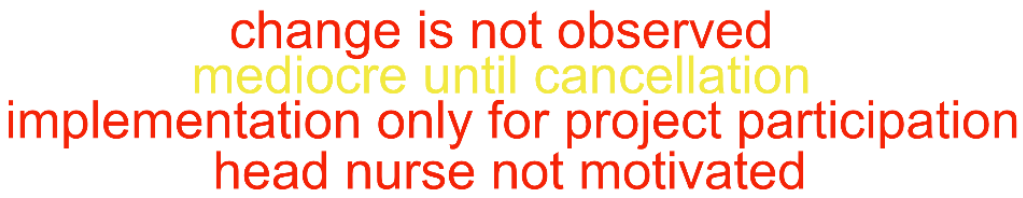

Figure 56: Field Notes all stations. Word cloud question 8: Pre implementation.

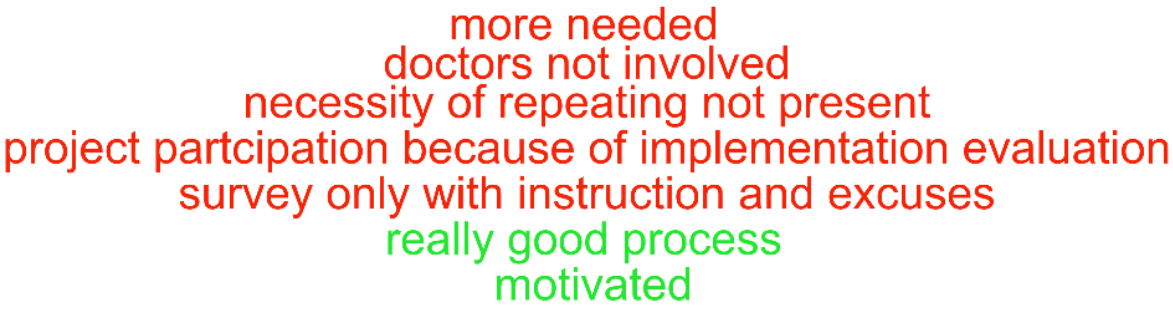

Figure 57: Field Notes all stations. Word cloud question 8: While implementation.

Figure 58: Field Notes all stations. Word cloud question 8: Post implementation.

9. Other comments and observations

Due to the size and length of the *other comments and observations* section, the responses were analysed and summarised in one text.

The following comments and observations were documented before the implementation. Prior to implementation, communication problems occurred on one station, on another the

physicians did not participate in the project, on one station the project had to be discontinued for capacity reasons, and on another it was paused. However, the development of a good process could be observed on two stations.

Summary: communication problem, doctors are not involved, good progress, lack of capacity led to cancellation.

The following comments and observations were documented during the implementation. During the implementation phase it was observed that on one station no significant changes happened, the responsibilities changes on another station, because of Covid-19 one station had to pause. Furthermore, a lack of time, communication problems and understaffing were observed. However, positive encounters with patients and practitioners on another ward were also observed.

Summary: no change, responsibility has changed, pause due to Covid-19, lack of time, IT issues, positive patient encounter, communication problem, positive practitioner encounter, understaffing.

The following comments and observations were documented after the implementation. After the implementation phase, a decrease in the number of participating patients was noted in several stations. In addition, good processes, communication problems, IT problems and the removal of project documents were noted. In one station, there was positive feedback from a patient.

Summary: decrease of participating patients, good process, communication problem, IT issues, positive patient encounter, decentral placed equipment.

In Table 13 are the results of all questions summarized.

All Stations	**Summary of time periods**		
Questions	Pre	While	Post
How many times have you observed the Help-5 being issued?	2	3	3
Comments	Rare, 3-10 per day, distributes sometimes, 5-6 patients in one week, hand out some on other days too, regularly in late shift, numbers variate, start 10/30, 10 per day.	10 per day, 3-10 per day, hand out some on other days too, distribute regularly, accompanied.	10 per day, 3-10 per day, hand out some on other days too, distribute regularly, accompanied.
How do the practitioners react to the Help-5?	J	J	J

Comments	Positive, surprised, to many questionnaires, good according to nurses, urge to play with tablet, very interested.	Surprised, easy to handle, difficulty to hear, joyful participation, curious and willingly, difficulty to speak, appeared strained, sceptical.	Decrease of willing patients
How do the practitioners react to the Help-5?	J	J	J
Comments	Staff shortage, positive reaction, specified as compulsory task, god after explaining project again, good until decrease of capacity, developed a good process, no time.	Not motivated, good questionnaire, extensive conversation with patient, results are dis-cussed directly with doctor, indicated to get back to patient later, very motivated, are trying.	On own initiative, resentment due to second accompany, positive.
Do the practitioners seem confident in handling the software?	J	J	J
Comments	First with instructions, long code validity is positive, not used enough, good.	Partially, process development increases, never done.	Never done, mostly
Is the responsibility for passing on the tablet distributed among several people?	☒	✓	✓
Comments	One person, secretary, not yet maybe 2 nurses, no one directly specified, all for blood withdrawl, 3 medical assistants	One person, secretary, staff distributes them, one practitioner every Wednesday, questionnaire placed central, nurses.	Questionnaire placed decentral, one practitioner every Wednesday.
Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?	✓	✓	✓
Comments	Age, language, cognitive	Language, according to illness, cognitive, according to personal access, according to state of health, open minded, age.	According to responsiveness, according to illness.
What is the general mood like on the unit / ambulance with regard to the Help-5?	K	J	J
Comments	Not top priority, no incentive for implementation, head nurse has positive attitude, head nurse wants more participating nurses, time consuming process development, want to try but staff shortage, good routine.	Compulsory appointment, mediocre mood of responsible persons, process for results are missing, positive.	Positive, mood fluctuates, compulsory appointment, not motivated, nuisance.

What is your own assessment of how well the introduction of Help-5 is going?	K	J	J
Comments	Change is not observed, mediocre until cancellation, implementation only for project participation, head nurse not motivated.	more needed, doctors not involved, necessity of repeating not present, project participation because of implementation evaluation, survey only with instruction and excuses, really good process, motivated.	own initiative, no initiative, only for evaluation.
Other comments and observations	communication problem, doctors are not involved, good progress, lack of capacity led to cancellation.	no change, responsibility has changed, pause due to Covid-19, lack of time, IT issues, positive patient encounter, communication problem, positive practitioner encounter, understaffing.	decrease of participating patients, good process, communication problem, IT issues, positive patient encounter, decentral placed equipment.

Table 13: Summary of the field notes of all stations.

The summary and evaluation of the field notes of all participating stations has shown that some problems occur in several stations, e.g. IT problems, which may be attributable to a superordinate structure. Some problems occur across the survey phases, such as shortage of staff, and some problems occur only in one implementation phase. This can be seen as an indication that the implementation outcome dimensions should map the survey full stops and the overarching conditions separately or in more detail in order to provide a more accurate result of the evaluation of the implementation and to map problems with its structures more accurately.

5.3 Cumulation of factor analysis and qualitative results

The results of the factor analysis and the evaluation of the qualitative data with a focus on further possible factors influencing the implementation process in addition to the implementation outcome dimensions according to Proctor et al. result in the common ground of examining whether the implementation outcomes could be adapted with regard to the evaluation times or collected differently depending on the time in order to obtain a relevant result. The timing of the survey was previously disregarded in the factor analysis and it cannot be ruled out that this could have influenced the result. In addition to this finding, it can be noted that it is necessary to develop valid tools based on the eight implementation outcomes for the evaluation of the implementation process, taking into account the survey dates and

possible superordinate structures. This serves to obtain a more precise result of the evaluation of the implementation and to be able to map problems with their structures more precisely in order to be able to recognise and remedy them more effectively and sustainably.

6 Discussion

This chapter contains the methodological discussions and the discussion of the results. First, the approach of this work is critically examined and then the results. This serves to point out possible limitations.

6.1 Methodical discussion

Two different methods were used to answer the two research questions. The methodology of factor analysis to determine the discriminatory power of the implementation dimensions with the results of the practitioners' questionnaire was described in chapter 4.2. This is an exploratory factor analysis that uses the results of the practitioners' questionnaire to determine whether the implementation dimensions are actually selective with the questionnaire modules used. In the factor analysis, the different survey times are disregarded and the data is combined, since it is assumed that the dimensions should be selective regardless of the time. Whether this has a relevant effect on the analysis result is unknown.

6.2 Discussion of the results

In particular, the result of the two factor analyses can be viewed critically.

In the first factor analysis, one calculated variable turned out not to be suitable and there was no discriminatory power of the calculated variables for the individual outcome dimensions. In the second factor analysis with a slightly different Eigenvalue, all variables were suitable, but despite the result of two factors, no clear variable/outcome dimension could be identified because one variable could not be clearly assigned to the first or second factor. This poor result of the evaluation of the evaluation questionnaire must, but not exclusively, be due to the questionnaire, but could also be partly due to the data set. This data set has many completely missing questionnaires and the number of questionnaires collected also decreased with each period. Considering the relevance of the time periods, this imbalance of questionnaires collected in the time periods could have an influence on the evaluation of the evaluation questionnaire.

Also, the data of the field notes with which the qualitative analysis was done could have been better. The summary of the Excel spreadsheet provided by the HELP-5 project by Görlach et al. had some gaps. On the one hand, this was due to the summary and the fact that some wards had to stop their participation in the implementation of the Help-5 questionnaire due to capacity constraints.

7 Recommendation for action

From the results of the two research questions, it is clear that there is still much need in the field of implementation research for validated instruments that can be used to evaluate the implementation process of PROs, as in this project. The first step for research would be to develop a validated instrument, for example a questionnaire, that can query all implementation dimensions according to Proctor et al. and how to deal with different survey time periods. Furthermore, it is important to consider to what extent a combination of different tools would be suitable for a meaningful evaluation and which tools are best suited for which of the eight dimensions. The development of a form of "toolbox" with standardized tools for the evaluation therefore seems to make sense. It is clear that there is a need for the successful implementation of PROs, and this should be the driving force for further implementation research, especially for this type of tool, in order to improve patient care and digitization in the long term.

8 Conclusion and Outlook

The present study dealt with the following questions: "*To what extent are the dimensions for measuring implementation according to Proctor et al. applied to the example of the implementation survey of the practitioners in the HELP-5 project at the UKE separable?*" and "*Which other factors can affect the implementation process?*".

In order to answer the first question, a factor analysis was carried out on the data set of the practitioner survey on implementation evaluation and the implementation dimensions used and thus the questionnaire components used for this purpose were examined for their discriminatory power. This is to examine the significance of the tool used to evaluate the implementation. The result shows that for one dimension the data set is not sufficient to conduct a factor analysis. In addition, the other dimensions could not be assigned their own factors, which is why they are not selective and significantly independent of each other. In the second attempt to assign a dimension to its own factor by lowering the Eigenvalue from 1 to 0.977, the first unsuitable dimension could be assigned to a second factor. However, in the course of this, another dimension could not be clearly assigned to the first or the second factor. Under these circumstances, the tools used for the implementation dimensions according to Proctor et al. (2011) are not to be assessed as being selective and significantly independent of each other.

In order to answer the second research question, the missing field notes on the MKG ward were collected, summarised and evaluated together with the summarised results of the field notes of all participating wards at the UKE. In response to the research question, it can be stated that indications point to the importance of observing the survey dates and to the influence of higher-level structures.

As a recommendation for action of this work, the need for development and research of an evaluation tool or a toolbox with different evaluation instruments for the implementation process oriented to the implementation outcomes according to Proctor et al. (2011) with consideration of the possible influences by different survey periods and superordinate structures. In the long term, it is necessary to be able to carry out implementations efficiently and successfully, especially in the case of pending implementations of new digital tools in the health care system. This will improve patient care and also the working conditions of the treating doctors and nurses, first and foremost with the reduction of paper bureaucracy.

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Declaration of independent work

“I hereby declare that I wrote this thesis without any assistance and used only the aids listed. Any material taken from
other works, either as a quote or idea have been indicated under ‘Sources’.”

Isabelle Sophie Meyer

Appendix

Appendix A: Questionnaire for the survey of the implementation dimensions of the practitioners on the stations of the UKE – Pre implementation.

PRE – WHILE – POST

Klinik und Poliklinik für Gynäkologie

Universitätsklinikum Hamburg-Eppendorf

Institut und Poliklinik für Medizinische Psychologie
II. Medizinische Klinik und Poliklinik
Klinik für Stammzelltransplantation
Klinik und Poliklinik für Gynäkologie
Klinik für Strahlentherapie und Radioonkologie
Klinik für Hals-, Nasen- und Ohrenheilkunde

Projektleitung:
Prof. Dr. Holger Schulz
Prof. Dr. Carsten Bokemeyer

Evaluationsstudie des „Help-5“

Datum: ___/___/_____

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Universitätsklinikum Hamburg-Eppendorf
Institut und Poliklinik für Medizinische Psychologie

Hubertus Wald Tumorzentrum
Universitäres Cancer Center Hamburg

Evaluationsstudie des Help-5

Im Folgenden möchten wir Sie bitten Ihren individuellen und anonymisierten, 4-stelligen Code zu erstellen. Dies ermöglicht uns die Daten aus den drei unterschiedlichen Erhebungszeitpunkten auf individueller Ebene zusammenzuführen. Der Code besteht jeweils aus dem zweiten Buchstaben Ihres Vornamens, dem letzten Buchstaben Ihres Geburtsortes und dem Tag Ihres Geburtsdatums. Dadurch müssen Sie sich Ihren Code nicht merken, sondern können ihn immer wieder leicht herleiten.

Hier ein Beispiel:

Vorname: ANNE Geburtsort: HAMBURG Geburtsdatum: **17**. Juli 1965

N	G	1	7
1	2	3	4

Erstellen Sie nun bitte Ihren persönlichen Code und tragen ihn auf der Vorderseite ein:

1	2	3	4
Zweiter Buchstabe Ihres Vornamens	Letzter Buchstabe Ihres Geburtsortes	Tag Ihres Geburtsdatums	

Allgemeine Angaben:

1.	**Geschlecht**	☐ weiblich ☐ männlich ☐ divers
2.	**Berufsbezeichnung**	☐ Gesundheits- und Krankenpfleger*in ☐ Assistenzarzt*ärztin ☐ Facharzt*ärztin
3.	**Berufserfahrung im onkologischen Bereich**	_____ (in Jahren)

Wie hilfreich schätzen Sie die Infos des HELP-5 für die Behandlung Ihrer Patient_innen ein?

gar nicht hilfreich — sehr hilfreich

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Was denken Sie, wie viel Zeit die Anwendung des HELP-5 für Sie in Anspruch nehmen wird?

zu viel Zeit — angemessen viel Zeit

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Bitte geben Sie nun an, wie sehr Sie den folgenden Aussagen zum Help-5 zustimmen.

1. **Ihre Klinik verfügt über genügend Personal, um den Help-5 einzusetzen (oder umzusetzen).**

stimme überhaupt nicht zu ☐ | stimme nicht zu ☐ | unentschlossen ☐ | stimme zu ☐ | stimme voll zu ☐

2. **Ihre Klinik verfügt über ausreichend Ressourcen, um den Help-5 einzusetzen (oder umzusetzen).**

stimme überhaupt nicht zu ☐ | stimme nicht zu ☐ | unentschlossen ☐ | stimme zu ☐ | stimme voll zu ☐

3. **Sie haben Zeit, die notwendigen Vorbereitungsarbeiten für den Einsatz des Help-5 durchzuführen.**

stimme überhaupt nicht zu ☐ | stimme nicht zu ☐ | unentschlossen ☐ | stimme zu ☐ | stimme voll zu ☐

Evaluationsstudie des Help-5

Bitte geben Sie im Folgenden an, wie sehr Sie den folgenden Aussagen zur Umsetzung des Help-5 an Ihrem aktuellen Arbeitsplatz zustimmen. Falls der Help-5 aktuell noch nicht umgesetzt wird, wie wäre es im Falle der Umsetzung?

1. **Personen, die hier arbeiten, zeigen hohes Engagement bei der Umsetzung des Help-5.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

2. **Personen, die hier arbeiten, werden tun, was auch immer nötig ist, um den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

3. **Personen, die hier arbeiten, wollen den Help-5 umsetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

4. **Personen, die hier arbeiten, sind fest entschlossen, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

5. **Personen, die hier arbeiten, sind motiviert, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

6. **Eventuell entstehen bei der Umsetzung des Help-5 Herausforderungen. Personen, die hier arbeiten, sind zuversichtlich, diese zu meistern.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

7. **Personen, die hier arbeiten, sind zuversichtlich, dass sie den Verlauf der Umsetzung vom Help-5 überblicken können.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

8. **Personen, die hier arbeiten, sind zuversichtlich, dass sie Aufgaben so koordinieren können, dass die Umsetzung reibungslos abläuft.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

9. **Personen, die hier arbeiten, sind zuversichtlich, dass die Klinik sie dabei unterstützten kann, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

10. **Personen, die hier arbeiten, sind zuversichtlich, Machenschaften bei der Umsetzung vom Help-5 bewältigen zu können.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

Vielen Dank für Ihre Mitarbeit!

Appendix B: Questionnaire for the survey of the implementation dimensions of the practitioners on the stations of the UKE – While implementation.

PRE - **WHILE** - POST

Klinik für Mund-, Kiefer- und Gesichtschirurgie
Station:

Universitätsklinikum Hamburg-Eppendorf

Institut und Poliklinik für Medizinische Psychologie
II. Medizinische Klinik und Poliklinik
Klinik für Stammzelltransplantation
Klinik und Poliklinik für Gynäkologie
Klinik für Strahlentherapie und Radioonkologie
Klinik für Hals-, Nasen- und Ohrenheilkunde

Projektleitung:
Prof. Dr. Holger Schulz
Prof. Dr. Carsten Bokemeyer

Evaluationsstudie des „Help-5“

Datum: ___ /___ /_____

Ansprechpartnerin:
M.Sc. Mirja Görlach: m.goerlach@uke.de

Universitätsklinikum Hamburg-Eppendorf
Institut und Poliklinik für Medizinische Psychologie

Hubertus Wald Tumorzentrum
Universitäres Cancer Center Hamburg

Evaluationsstudie des Help-5

Im Folgenden möchten wir Sie wieder bitten Ihren individuellen und anonymisierten, 4-stelligen Code zu erstellen. Dies ermöglicht uns die Daten aus den drei unterschiedlichen Erhebungszeitpunkten auf individueller Ebene zusammenzuführen. Der Code besteht jeweils aus dem zweiten Buchstaben Ihres Vornamens, dem letzten Buchstaben Ihres Geburtsortes und dem Tag Ihres Geburtsdatums. Dadurch müssen Sie sich Ihren Code nicht merken, sondern können ihn immer wieder leicht herleiten.

Hier ein Beispiel:

Vorname: A**N**NE Geburtsort: HAMBUR**G** Geburtsdatum: **17**. Juli 1965

1	2	3	4
N	G	1	7

Erstellen Sie nun bitte Ihren persönlichen Code und tragen Sie ihn auf der Vorderseite ein:

1	2	3	4
Zweiter Buchstabe Ihres Vornamens	Letzter Buchstabe Ihres Geburtsortes	Tag Ihres Geburtsdatums	

Evaluationsstudie des Help-5

Nun würden wir gerne von Ihnen wissen, was für Erfahrungen Sie in den letzten Wochen mit dem Help-5 gemacht haben.

Wie häufig im Laufe der Behandlung haben Ihre Patient_innen im Schnitt den Help-5 ausgefüllt?

Antwort: _____ Mal

Wie häufig im Laufe der Behandlung haben Sie die Ergebnisse des Help-5 in Ihre jeweiligen Patientengespräche miteinbezogen?

nie	selten	manchmal	oft	immer
☐	☐	☐	☐	☐

Waren der Ablauf und die Interpretation des Help-5 für Sie klar und transparent?

überhaupt nicht				sehr
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Hätten Sie sich noch zusätzliche Infos für die Handhabung des Help-5 gewünscht?

Antwort:

_____

_____

_____

_____

_____

_____

_____

Nutzen Sie den HELP-5 für Ihre Behandlung?

überhaupt nicht				sehr
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Evaluationsstudie des Help-5

Im Folgenden würden wir Sie gerne fragen, was Sie über die Nutzung des Help-5 denken.

1. **Wie einfach fanden Sie die Nutzung des Help-5?**

sehr schwierig				sehr einfach
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2. **Wie verständlich waren die Fragen für Sie?**

schwer verständlich				leicht verständlich
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

3. **Wie sehr hat Ihnen die Nutzung des Help-5 gefallen?**

überhaupt nicht				sehr gut
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4. **Wie geeignet war der Help-5 für die Beschreibung der Symptome und der Lebensqualität Ihres/r Patient_in?**

sehr ungeeignet				sehr geeignet
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. **War der zeitliche Aufwand, um den Help-5 auszufüllen, akzeptabel?**

sehr inakzeptabel				sehr akzeptabel
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6. **Wie zufrieden sind Sie insgesamt mit dem Help-5?**

sehr unzufrieden				sehr zufrieden
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Acceptability E-Scale

Evaluationsstudie des Help-5

Bitte geben Sie an, wie sehr Sie den folgenden Aussagen zum Help-5 zustimmen.

1. **Sie waren zufrieden mit dem Help-5.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

2. **Sie würden sich wohlfühlen, den Help-5 anzuwenden.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

3. **Die Inhalte des Help-5 sind für die Bedürfnisse Ihrer Patient_innen relevant.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

4. **Sie erwarten, dass der Help-5 weiterhin genutzt werden wird.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

Bitte geben Sie an, wie sehr Sie den folgenden Aussagen zur Implementierung des Help-5 an Ihrem aktuellen Arbeitsplatz zustimmen.

1. **Ich kann erkennen, wie sich der Help-5 von herkömmlichen Tätigkeiten unterscheidet.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

2. Die Mitarbeiter haben ein gemeinsames Verständnis vom Sinn und Zweck von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

3. Ich habe eine Vorstellung davon, wie Help-5 meine Arbeitsweise beeinflusst.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

4. Ich habe eine Vorstellung von dem potentiellen Mehrwert vom Help-5 für meine Arbeit.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

5. Es gibt Verantwortliche in meiner Arbeitsstätte, welche den Help-5 vorantreiben und welche andere einbeziehen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

6. Ich bin davon überzeugt, dass mein Einsatz beim Help-5 ein legitimer Teil meiner Tätigkeit ist.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

7. Ich bin offen für die neuen Arten der Zusammenarbeit bei der Nutzung von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

8. Ich werde den Help-5 weiterhin unterstützen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

9. Es fällt mir leicht den Help-5 zu einem normalen Bestandteil meiner Arbeit zu machen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

10. Der Help-5 bedroht das Arbeitsverhältnis zwischen den Mitarbeitern.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

11. Ich habe Vertrauen in die Kompetenz anderer Mitarbeiter, den Help-5 anzuwenden.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

12. Die Tätigkeiten werden denjenigen zugewiesen, welche über angemessene Kompetenzen für die Nutzung von Help-5 verfügen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

13. Um die Anwendung von Help-5 sicherzustellen, werden ausreichende Schulungen angeboten.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

14. Es sind ausreichend Ressourcen zur Unterstützung von Help-5 verfügbar.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

15. Die Führungskräfte unterstützen den Help-5 ausreichend.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

16. Ich habe Zugang zu Berichten über die Wirkung von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

17. Die Mitarbeiter sind sich einige, dass der Help-5 lohnenswert ist.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

18. Ich schätze die Auswirkungen, welche der Help-5 auf meine Arbeit hat.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

19. Rückmeldungen über den Help-5 können genutzt werden, um das Programm in der Zukunft zu verbessern.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

20. Ich kann beeinflussen, wie ich mit dem Help-5 arbeite.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

Vielen Dank für Ihre Mitarbeit!

Appendix C: Questionnaire for the survey of the implementation dimensions of the practitioners on the stations of the UKE – Post implementation

PRE – WHILE – **POST**

Klinik für Mund-, Kiefer- und Gesichtschirurgie
Station:

Universitätsklinikum Hamburg-Eppendorf

Institut und Poliklinik für Medizinische Psychologie
II. Medizinische Klinik und Poliklinik
Klinik für Stammzelltransplantation
Klinik und Poliklinik für Gynäkologie
Klinik für Strahlentherapie und Radioonkologie
Klinik für Hals-, Nasen- und Ohrenheilkunde

Projektleitung:
Prof. Dr. Holger Schulz
Prof. Dr. Carsten Bokemeyer

Evaluationsstudie des „Help-5“

Datum: ___ /___ /_____

Ansprechpartnerinnen:
M.Sc. Mirja Görlach: m.goerlach@uke.de

Evaluationsstudie des Help-5

Im Folgenden möchten wir Sie wieder bitten Ihren individuellen und anonymisierten, 4-stelligen Code zu erstellen. Dies ermöglicht uns die Daten aus den drei unterschiedlichen Erhebungszeitpunkten auf individueller Ebene zusammenzuführen. Der Code besteht jeweils aus dem zweiten Buchstaben Ihres Vornamens, dem letzten Buchstaben Ihres Geburtsortes und dem Tag Ihres Geburtsdatums. Dadurch müssen Sie sich Ihren Code nicht merken, sondern können ihn immer wieder leicht herleiten.

Hier ein Beispiel:

Vorname: A**N**NE Geburtsort: HAMBUR**G** Geburtsdatum: **17**. Juli 1965

N	G	1	7
1	2	3	4

Erstellen Sie nun bitte Ihren persönlichen Code und tragen Sie ihn auf der Vorderseite ein:

1	2	3	4
Zweiter Buchstabe Ihres Vornamens	Letzter Buchstabe Ihres Geburtsortes	Tag Ihres Geburtsdatums	

Evaluationsstudie des Help-5

Nun würden wir gerne von Ihnen wissen, was für Erfahrungen Sie in den letzten Wochen mit dem Help-5 gemacht haben.

Wie hilfreich schätzen Sie die Infos des HELP-5 für die Behandlung Ihrer Patient_innen ein?

gar nicht hilfreich — sehr hilfreich

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Wie viel Zeit hat die Anwendung des HELP-5 für Sie in Anspruch genommen?

zu viel Zeit — angemessen viel Zeit

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Wie häufig im Laufe der Behandlung haben Ihre Patient_innen im Schnitt den Help-5 ausgefüllt?

Antwort: _____ Mal

Wie häufig im Laufe der Behandlung haben Sie die Ergebnisse des Help-5 in Ihre jeweiligen Patientengespräche miteinbezogen?

nie ☐ — selten ☐ — manchmal ☐ — oft ☐ — immer ☐

Waren der Ablauf und die Interpretation des Help-5 für Sie klar und transparent?

überhaupt nicht — sehr

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Nutzen Sie den HELP-5 für Ihre Behandlung?

überhaupt nicht — sehr

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Hätten Sie sich noch zusätzliche Infos für die Handhabung des Help-5 gewünscht?

Antwort:

Evaluationsstudie des Help-5

Im Folgenden würden wir Sie gerne fragen, was Sie über die Nutzung des Help-5 denken.

1. **Wie einfach fanden Sie die Nutzung des Help-5?**

sehr schwierig				sehr einfach
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

2. **Wie verständlich waren die Fragen für Sie?**

schwer verständlich				leicht verständlich
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

3. **Wie sehr hat Ihnen die Nutzung des Help-5 gefallen?**

überhaupt nicht				sehr gut
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4. **Wie geeignet war der Help-5 für die Beschreibung der Symptome und der Lebensqualität Ihres/r Patient_in?**

sehr ungeeignet				sehr geeignet
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. **War der zeitliche Aufwand, um den Help-5 auszufüllen, akzeptabel?**

sehr inakzeptabel				sehr akzeptabel
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

6. **Wie zufrieden sind Sie insgesamt mit dem Help-5?**

sehr unzufrieden				sehr zufrieden
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Acceptability E-Scale

Evaluationsstudie des Help-5

Bitte geben Sie an, wie sehr Sie den folgenden Aussagen zum Help-5 zustimmen.

1. **Ihre Klinik verfügt über genügend Personal, um den Help-5 einzusetzen (oder umzusetzen).**

stimme überhaupt nicht zu	stimme nicht zu	Unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

2. **Ihre Klinik verfügt über ausreichend Ressourcen, um den Help-5 einzusetzen (oder umzusetzen).**

stimme überhaupt nicht zu	stimme nicht zu	Unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

3. **Sie haben Zeit, die notwendigen Vorbereitungsarbeiten für den Einsatz des Help-5 durchzuführen.**

stimme überhaupt nicht zu	stimme nicht zu	Unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

4. **Sie waren zufrieden mit dem Help-5.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

5. **Sie würden sich wohlfühlen, den Help-5 anzuwenden.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

6. **Die Inhalte des Help-5 sind für die Bedürfnisse Ihrer Patient_innen relevant.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

7. **Sie erwarten, dass der Help-5 weiterhin genutzt werden wird.**

stimme überhaupt nicht zu	stimme nicht zu	unentschlossen	stimme zu	stimme voll zu
☐	☐	☐	☐	☐

Bitte geben Sie an, wie sehr Sie den folgenden Aussagen zur Umsetzung des Help-5 an Ihrem aktuellen Arbeitsplatz zustimmen.

1. **Personen, die hier arbeiten, zeigen hohes Engagement bei der Umsetzung des Help-5.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

2. **Personen, die hier arbeiten, werden tun, was auch immer nötig ist, um den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

3. **Personen, die hier arbeiten, wollen den Help-5 umsetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

4. **Personen, die hier arbeiten, sind fest entschlossen, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

5. **Personen, die hier arbeiten, sind motiviert, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

6. **Eventuell entstehen bei der Umsetzung des Help-5 Herausforderungen. Personen, die hier arbeiten, sind zuversichtlich, diese zu meistern.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

7. **Personen, die hier arbeiten, sind zuversichtlich, dass sie den Verlauf der Umsetzung vom Help-5 überblicken können.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

8. **Personen, die hier arbeiten, sind zuversichtlich, dass sie Aufgaben so koordinieren können, dass die Umsetzung reibungslos abläuft.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

9. **Personen, die hier arbeiten, sind zuversichtlich, dass die Klinik sie dabei unterstützten kann, den Help-5 umzusetzen.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

10. **Personen, die hier arbeiten, sind zuversichtlich, Machenschaften bei der Umsetzung vom Help-5 bewältigen zu können.**

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

Evaluationsstudie des Help-5

Bitte geben Sie an, wie sehr Sie den folgenden Aussagen zur Implementierung des Help-5 an Ihrem aktuellen Arbeitsplatz zustimmen.

1. Ich kann erkennen, wie sich der Help-5 von herkömmlichen Tätigkeiten unterscheidet.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

2. Die Mitarbeiter haben ein gemeinsames Verständnis vom Sinn und Zweck von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

3. Ich habe eine Vorstellung davon, wie Help-5 meine Arbeitsweise beeinflusst.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

4. Ich habe eine Vorstellung von dem potentiellen Mehrwert vom Help-5 für meine Arbeit.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

5. Es gibt Verantwortliche in meiner Arbeitsstätte, welche den Help-5 vorantreiben und welche andere einbeziehen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

6. Ich bin davon überzeugt, dass mein Einsatz beim Help-5 ein legitimer Teil meiner Tätigkeit ist.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

7. Ich bin offen für die neuen Arten der Zusammenarbeit bei der Nutzung von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

8. Ich werde den Help-5 weiterhin unterstützen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

9. Es fällt mir leicht den Help-5 zu einem normalen Bestandteil meiner Arbeit zu machen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

10. Der Help-5 bedroht das Arbeitsverhältnis zwischen den Mitarbeitern.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

11. Ich habe Vertrauen in die Kompetenz anderer Mitarbeiter, den Help-5 anzuwenden.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

12. Die Tätigkeiten werden denjenigen zugewiesen, welche über angemessene Kompetenzen für die Nutzung von Help-5 verfügen.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

13. Um die Anwendung von Help-5 sicherzustellen, werden ausreichende Schulungen angeboten.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

14. Es sind ausreichend Ressourcen zur Unterstützung von Help-5 verfügbar.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

15. Die Führungskräfte unterstützen den Help-5 ausreichend.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

16. Ich habe Zugang zu Berichten über die Wirkung von Help-5.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

17. Die Mitarbeiter sind sich einige, dass der Help-5 lohnenswert ist.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

18. Ich schätze die Auswirkungen, welche der Help-5 auf meine Arbeit hat.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

19. Rückmeldungen über den Help-5 können genutzt werden, um das Programm in der Zukunft zu verbessern.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

20. Ich kann beeinflussen, wie ich mit dem Help-5 arbeite.

stimme nicht zu	stimme eher nicht zu	teils teils	stimme eher zu	stimme zu
☐	☐	☐	☐	☐

Vielen Dank für Ihre Mitarbeit!

Appendix D: Field note form.

Beobachtung Field Notes

Datum: von ____:____ bis ____:____ Uhr

Klinik: Station:

BeobachterIn: Dauer (in Minuten):

1. Wie oft hast du beobachtet, dass der Help-5 ausgegeben wurde? Gesamt-Anzahl: _____

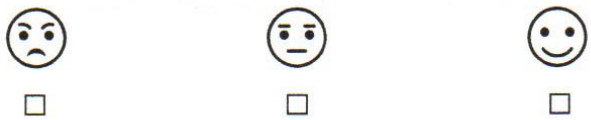
Strichliste:

2. Wie reagieren die Patienten auf den Help-5?

☐ ☐ ☐

Anmerkung:

3. Wie reagieren die Behandler auf den Help-5?



☐ ☐ ☐

Anmerkung:

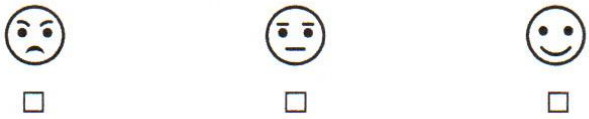
1/3

7. Wie ist die allgemeine Stimmung auf der Station / in der Ambulanz in Bezug auf den Help-5?

☐ ☐ ☐

Anmerkung:

8. Was ist deine eigene Einschätzung, wie gut die Einführung des Help-5 hier klappt?



☐ ☐ ☐

Anmerkung:

9. Sonstige Anmerkungen und Besonderheiten:

4. Wirken die Behandler sicher im Umgang mit der Software?

☐ ☐ ☐

Anmerkung:

5. Ist die Zuständigkeit zur Weitergabe des Tablets auf mehrere Personen verteilt?

☐ ja ☐ nein

Erläuterung:

6. Gibt es klare Ein- und Ausschlusskriterien, welcher Patient den Fragebogen erhält und wer nicht?

☐ ja ☐ nein

Erläuterung:

Appendix E: Table with summary of the field notes of the MKG with two time periods.

Question/Date of documentation	28.04.2021	05.05.2021	12.05.2021
1. How many times have you observed the Help-5 being issued? comments	1 accompanied	0	1 accompanied
2. How do the patients react to the Help-5? comments	☺		☺
3. How do the practitioners react to the Help-5? comments	☺		☺
4. Do the practitioners seem confident in handling the software? comments	☺ mostly		☺ yes
5. Is the responsibility for passing on the tablet distributed among several people? comments	✓ questionnaire placed central		✓ one practitioner every Wednesday, questionnaire placed central
6. Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not? comments	✓ according to illness, according to state of health and according to personal access.		✓ considered according to illness, state of health and personal access.
7. What is the general mood like on the unit / ambulance with regard to the Help-5? comments	☺ motivated		☺ positive, compulsory appointment
8. What is your own assessment of how well the introduction of Help-5 is going? comments	😐 motivated, more needed		😐 motivated, more needed
9. Other comments and observations	patient was pleased about the interest in her wellbeing. practitioner was pleased about the positive feedback	No visit possible due to illness of staff	IT issue

Q.	19.05.2021	26.05.2021	02.06.2021	09.06.2021
1. C.	1 accompanied	**0**	1 accompanied	1 accompanied
2. C.	☺		😐 appeared strained, difficulty hearing, difficulty speaking	☹☺ defensive attitude, joyful participation
3. C.	☺		😐 not motivated	☺ extensive conversation with patient
4. C.	☹ never done		😐 partially	😐 partially
5. C	✓ one practitioner every Wednesday, questionnaire placed central		✓ one practitioner every Wednesday, questionnaire placed central	✓ one practitioner every Wednesday, questionnaire placed central
6. C.	✓ considered according to illness, state of health and personal access.		✓ considered according to illness, state of health and personal access.	✓ considered according to illness, state of health and personal access.
7. C.	☺ positive, compulsory appointment		☺ positive, compulsory appointment	☺ positive, compulsory appointment
8. C.	😐 motivated, more needed		😐 necessity of repeating not present	😐 necessity of repeating not present
9.	IT issue	No visit possible due to understaffing	IT issue, Communication problem due to literacy and language skills of the practitioner.	

Q.	16.06.2021	23.06.2021	30.06.2021	07.07.2021
1. C.	1 accompanied	**0**	**0**	**0**
2. C.	☺			
3. C.	☺ very motivated, indicated to get back to patient later			
4. C.	😐 partially			
5. C	✓ one practitioner every Wednesday, questionnaire placed central			
6. C.	✓ considered according to illness, state of health and personal access.			
7. C.	☺ positive, compulsory appointment			
8. C.	☺ necessity of repeating not present			
9.		No visit possible due to IT issue	No visit possible due to lack of time	No time for an accompanied survey. Appointment no longer fits. Next appointment Thursday.

Q.	08.07.2021	14.07.2021	21.07.2021	28.07.2021
1. C.	0	1 accompanied	2 accompanied	0
2. C.	☺	☺	☺	
3. C.	☺	☺ on own initiative.	😐 resentment due to second accompany	
4. C.	☹ never done	☺ mostly, creation of the access code takes too long	☺	
5. C	✓ one practitioner every Wednesday, questionnaire placed central	✓ one practitioner every Wednesday	✓ one practitioner every Wednesday	
6. C.	✓ considered according to illness, state of health and personal access.	✓ according to illness according to responsiveness	✓ according to illness, according to cognitive ability	
7. C.	😐 survey considered more disruptive, lack of time	😐 motivated, nuisance	☺ mood fluctuates, motivated	
8. C.	☹ increasingly neglected	😐 lack of time, IT issues	😐 own initiative, no initiative	
9.	No visit possible due to IT issue			No survey in company, as no time on the station.

Q.	04.08.2021	11.08.2021	18.08.2021
1. C.	0	1 accompanied	1 accompanied
2. C.	no survey possible	☺	☺
3. C.	☺ positive	☺	☺
4. C.	☹ never done	😐 mostly	☹ never done
5. C	✓ one practitioner every Wednesday	✓ one practitioner every Wednesday	✓ questionnaire placed decentral, one practitioner every Wednesday
6. C.	✓ according to illness, according to responsiveness	✓ according to illness, according to responsiveness	✓ according to illness, according to responsiveness
7. C.	☺ motivated	😐 not motivated	☺ Positive, compulsory appointment
8. C.	😐 lack of time, IT issues	😐 own initiative, no initiative	😐 own initiative, no initiative
9.	No survey possible due to IT issues		The documents and the tablet for the survey were moved to the farthest corner of the counter by the station during tidying up. As a result, the documents and the tablet are hardly visible and not present. The tablet is now placed under the edge of the counter and is difficult to access.

Appendix F: Table with summary of the field notes of all stations and time periods.

Time period	Pre	While	Post
How many times have you observed the Help-5 being issued?			
Station A	0	3	0
	-	-	-
Station B	1	5	0
	start 10/30	-	-
Station C	0	0	-
	5-6 patients one week	-	-
Station D	5	2	2
	10 per day	10 per day	10 per day
Station E	3	3	9
	hand out some on the other days too	hand out some on the other days too	hand out some on the other days too
Station F	0	0	0
	regularly in late shift	distribute regularly	distribute regularly
Station G	0	2	-
	distribute sometimes	-	-
Station H	0	-	-
	numbers variate	-	-
Station I	12	11	6
	3-10 per day	3-10 per day	3-10 per day
Station J	0	1	1
	rare	accompanied	accompanied
How do the patients react to the Help-5?			
Station A	😑	☺	-
	to many questionnaires	-	-
Station B	☺	☺	-
	-	-	-
Station C	☺	😑	-
	according to the nurses	sceptical, curious and willingly	-
Station D	☺	☺	😑
	positive, surprised	-	-
	☺	☺	☺

Station E	-	-	-
Station F	☺	☺	☺
	very interested	-	-
Station G	😐	😐	-
	urge to play with tablet	-	-
Station H	☺	-	-
	-	-	-
Station I	☺	☺	😐
	positive	easy to handle, surprised	decrease of willing patients
Station J	☺	☺	☺
	-	Appeared strained, difficulty to speak, joyful participation, difficulty to hear	-
How do the practitioners react to the Help-5?			
Station A	-	☺	-
	-	are trying	-
Station B	☺	☺	😐
	after explaining the project again	-	-
Station C	☺	☺	-
	-	good questionnaire	-
Station D	☺	☺	☺
	-	-	-
Station E	☺	☺	☺
	must be specified as a compulsory task	-	-
Station F	☺	☺	☺
	developed a good process	-	-
Station G	😐	😐	-
	staff shortage	-	-
Station H	😐		-
	until the capacity was not there anymore	-	-
Station I	☺	☺	☺
	positive reaction of patient	results discussed directly with doctor	-
	☹	☺	☺

Station J	no time, staff shortage	Very motivated, extensive conversation with patient, not motivated, indicated to get back to patient later	On own initiative, resentment due to second accompany, positive
Do the practitioners seem confident in handling the software?			
Station A	😐	☺	-
	-	-	-
Station B	😐	☺	-
	first with instructions than good	-	-
Station C	-	☺	-
	-	not a good process at the beginning but now it gets better	-
Station D	☺	☺	☺
	-	-	-
Station E	☺	☺	☺
	-	-	-
Station F	☺	☺	☺
	long code validity is positive	-	-
Station G	☺	☺	-
	-	-	-
Station H	😐	-	-
	-	-	
Station I	☺	☺	☺
	-	-	-
Station J	😐	😐	😐
	is not used enough	Partially, never done	Never done, mostly
Is the responsibility for passing on the tablet distributed among several people?			
Station A	☒	✓	-
	secretary	secretary generates the codes, nursing staff distributes them	-
Station B	☒	☒	☒
	secretary	secretary	-
Station C	☒	✓	-

	not yet, maybe 2 nurses	nurses	-
Station D	✓	✓	✓
	all for blood withdrawal	-	-
Station E	✓	✓	✓
	3 medical assistants	-	-
Station F	✓	✓	✓
	-	-	-
Station G	☒	☒	-
	one person	one person	-
Station H	☒	-	-
	one person	-	-
Station I	☒	☒	☒
	one person	one person	
Station J	☒	✓	✓
	no one directly specified	Questionnaire placed central, one practitioner every Wednesday	One practitioner every Wednesday, questionnaire placed decentral
Are there clear inclusion and exclusion criteria as to which patient receives the questionnaire and who does not?			
Station A	☒	✓	-
	everybody	cognitive	-
Station B	✓	✓	✓
	cognitive, age, language	cognitive, age, language	-
Station C	☒	✓	-
	-	cognitive, open minded	-
Station D	✓	✓	✓
	doctors selects patients	-	-
Station E	✓	✓	✓
	language, health status, cognitive	-	-
Station F	✓	✓	✓
	open to survey	-	-
Station G	☒	☒	-
	not set directly	-	-
Station H	✓	-	-
	none from ICU	-	-
	✓	✓	✓

Station I	language, age, regular patients	-	-
Station J	☒	✓	✓
	arbitrarily	According to illness, according to personal access, according to state of health	According to illness, according to responsiveness
What is the general mood like on the unit / ambulance with regard to the Help-5?			
Station A	😐	☺	-
	not top priority	-	-
Station B	😐	😐	😐
	no incentive for implementation	who are responsible	-
Station C	☺	😐	-
	head nurses has a positive attitude	process for results are missing	-
Station D	☺	☺	☺
	-	-	-
Station E	☺	☺	☺
	good routine	-	-
Station F	😐	☺	☺
	time consuming process development	-	-
Station G	😐	😐	-
	head nurse wants more participating nurses	-	-
Station H	😐	-	-
	-	-	-
Station I	☺	☺	☺
	-	-	-
Station J	😐	☺	☺
	want to try but no staff	Positive, compulsory appointment	Not motivated, motivated, compulsory appointment, mood fluctuates, nuisance, positive
What is your own assessment of how well the introduction of Help-5 is going?			
Station A	😐	☺	-

	cause of the evaluation they try to reach the desired number of patients	-	-
Station B	😐	😐	☹
	-	the doctors are not involved	only for the evaluation
Station C	😐	☺	-
	-	-	-
Station D	☺	☺	☺
	-	-	-
Station E	☺	☺	☺
	-	-	-
Station F	☺	☺	☺
	-	-	-
Station G	😐	☹	-
	head nurses does not try, only because of project participation	practitioner only does it on instruction and always finds excuses	-
Station H	😐	-	-
	until cancellation	-	-
Station I	☺	☺	☺
	-	very good process	-
Station J	😐	😐	😐
	No change observed	More needed, necessity of repeating not present motivated	Own initiative, no initiative
Other comments and observations			
Station A	head nurse is difficult to reach	-	many long-term patients, therefore very few surveys
Station B	doctors are not involved	-	only 4 patients
Station C	-	-	one patient
Station D	very good process	-	many patients no longer wanted to fill out a questionnaire, regardless of the study
Station E	-	everything unchanged	-
Station F	-	responsibility has changed	head nurse: everything continued good

Station G	-	temporarily no survey possible due to corona	head nurse never met. Responsible people were not on site
Station H	Project was cancelled due to capacity reasons	-	-
Station I	developed a good process with the doctors	-	problems with the results in Soarian after an update
Station J	project was paused	lack of time, IT issues, positive patient encounter, communication problem, positive practitioner encounter, understaffing	IT issues, positive patient encounter, decentral placed equipment