

Online Investigations on Optimizing the Danish Health Portal Sundhed.dk

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Abstract. In recent years, many people have experienced different problems and challenges in using the national Danish health portal sundhed.dk, as they find it difficult to obtain desired information about their own laboratory test results and treatment plans. Therefore, the aim of this study is to find solutions, to make patients laboratory results easily accessible and understandable for the users. To achieve this aim there will be used two participatory design methods, video observation and questionnaires. The results shows that only 43.5% normally understand their test results, whereas the remaining participants need help to understand their results.

Keywords. Participatory design, laboratory test, laboratory results, online health portal, video observations

1. Introduction

Over the past years, there has been an increased focus on development of the healthcare system and in Denmark new “Super Hospitals” have been built in all Regions. With these, the health service will focus more on outpatient- or day-treatment. With the reduction of hospital beds and admission time means that there will be an increased focus on telemedicine, as well as digitalization of health data [1] [2]. Patients will have an increased engagement and responsibility for their own course of treatment which will intensify the communication of patient data and laboratory test results via the national health portal sundhed.dk. Hence it becomes important that the information provided on the site is easily accessible and easy to understand for the patients. Communicating laboratory test results and information directly to the patient can reduce dependency of consulting their general practitioner or hospital clinicians. [3]

All Danish citizens above the age of 15 have access to a summary of their medical record and lab results on sundhed.dk where they can follow the progress of their treatments. This data comes directly from the hospitals’ electronic patient records; therefore, the text will consist of medical and technical terms, which makes it difficult to understand for ordinary citizens, without a health professional background. [4]

A study from ‘Syddansk Sundhedsinnovation’ shows that citizens often have difficulty understanding the medical terms, both in the medical records and in the explanatory texts. In addition, they also have difficulties finding the essential health information, due to problems with navigating on the website, naming of categories and the large number of advanced features. Therefore, several challenges are related to the actual finding of data. These are important for the citizens who are not used to the website

and to achieve the most out of their health record. The overall user experience also affects the citizen's understanding of data, and it is uncertain whether the provided data has the required quality. [4]

To improve the quality of communication of laboratory test results to ensure the patients get the right information from the data it is necessary to involve the patients. The aim of this project is to investigate the problems involved in finding and understanding the laboratory test results by using the national portal. In that way the user experience can be improved and might result in more independent users. To achieve this, citizens will be involved in the process to decode the actual needs of the general user of the site. [5]

The specific aims of this study are twofold. First to gain knowledge on citizens understanding of their laboratory test results, and second to evaluate online methods for engaging citizens/patients in a participatory design activity.

2. Methods

The patients are the best experts to determine what they understand by their test results and therefore it is essential to involve them in the development by participatory design methods. Stimulating participation has normally been achieved by methods that bring users together in physical workshops and meetings. However, due to the COVID-19 pandemic it has not been possible to plan activities where the participants and researchers can be together physically. We consequently planned for online activities. A basic consideration is to determine who the users are and how the contact to them can be established.

For the project, it has been chosen that the primary user must be the average Danish citizen who would like to see their laboratory results. All contact to the users has taken place through posts on social media and through acquaintances. All meetings with users have been online meetings. The specific methods applied in this study are video observations and questionnaires designed to explore the demands and needs of the various users.

2.1. Video observation

Video observation is a method that documents a segment of reality and communicates the message in a possibly understandable way to the recipient. The method was suitable for use in fields where human interaction takes place [6]. In this case, the method was used to observe the user's interaction with the website sundhed.dk and the use of it. A semi-structured script has been used for this method as seen in the plan in Table 1.

The script was divided into seven parts, with each of them having an estimated length varying from 2-10 minutes, depending on the content. The overall estimated time was set to approximately 45 minutes. Additionally, the script includes the interviewer and the respondent in those seven parts and how the notes would be taken.

This method allows the observer/interviewer to observe the whole-body language and the mimic during an interview, with an increased insight into the users' usage pattern. It will make it possible to distinguish from what they say that they do; think they do and really do in relation to the use.

Table 1. The plan for the script.

Name	Laboratory result interview
Format	35-45 min.
Narrative	The story of why we would like to develop the laboratory site, and how we will get to a solution
Aim	To achieve more user-friendly and understandable laboratory results on the website, so that users become more independent and comfortable in using it.
Target	That more users feel comfortable in the use of the website. Primarily increasing the independence and readability of lab results.
Media/execution	Optimally through the website (sundhed.dk), but with the possibilities now, it will be through our social circle.
Target group	18+ citizens, who are adults and therefore would actively consider their results (own health and they must take care of themselves)
Style & look	Fresh, open/curious and cozy (the interview)
Role distribution for the interview	Primary interviewer, secondary interviewer, and observer/note taker/technical responsible person
Recording	To be declared (Depending on the participants)

As an interviewer it can be a tough situation to experience if there is a negative approach from the beginning of the interview with the user. It is also important to act encouraging and attentive, during the interview to ensure the respondent feels heard.

2.2. Questionnaire

In questionnaire surveys, larger groups of citizens are asked the same questions and to give their answers in some predetermined answer categories. The citizens are randomly selected in such a way that they reflect the study area, which gives an overview of their experiences and assessments. In this case the method was used to examine the knowledge and the opinions to the website. This will gain an increased insight into the comprehensibility of the laboratory response. [7]

In the formation of the questionnaire, considerations have been made about what is to be found out, as well as forming an impression of who the users are and what characterizes different segments within their usage pattern and familiarity with the portal [7]. Therefore, the focus of the questionnaire is on the individual user, to understand if there are groups likely to use the site and to get a sense of their background. The questionnaire is divided into 5 sections each with its own purpose as presented in Table 2.

Table 2. The purpose of the questionnaires

Page	Purpose
1	Knowledge of the project and the purpose of the questionnaire, and that the survey is anonymous. However, they have the opportunity to write or ask questions and they have the opportunity to see the result in the end. The section also states how many questions there are and an estimate of how long it will take to answer them.
2	General information about the users: Age, gender, and which region they are from.
3	Questions about the highest level of education and current employment to see the professional distribution of the user groups.

4	Questions about the laboratory answer page. Develop a basis for understanding the contexts surrounding the use of the site.
5	Get an assessment on the questionnaire to help with improvements.

3. Results

During the data processing from the two methods, it emerged that the data collected from the video observation could only contribute with limited information about the use, as they were sporadic and not countable. The statements from the participants all included different problem areas about the user interface, but due to the variation in the participants focus area it was not possible to pinpoint a specific problem. Therefore, they are not included in the following paragraph and the data displayed are exclusively from the questionnaire survey, freely displayed on Facebook. The data is shown in Table 3 and presents the questions and the corresponding answers from 100 participants. In relation to the data processing, it is mainly relevant to focus on the answers involving the laboratory results page.

The results showed that 83.7% know about the laboratory result site and 37.6% use it less than once a month and 24.7% between 1-3 times a month. There are 43.5% who normally understand their results, whereas the remaining need help to understand their results.

Table 3. The questions and their corresponding answers.

Question	Answer options	Percentage
Have you heard about the laboratory response page on Sundhed.dk before?	Yes	83,7%
	No	16,3%
How many times do you use the laboratory answers page per month?	Never	18,8%
	Less than once	37,6%
	1 - 3	24,7%
	3 - 5	9,4%
	More than 5 times	9,4%
If there is something in your laboratory answers which you find difficult to understand or are unsure about, what will you do?	I can normally understand my lab answers.	43,5%
	I will read the response text that they give on the page.	32,9%
	I will try to google to find the answer.	27,1%
	I will ask an acquaintance for help.	8,2%
	I will contact my doctor.	24,7%
	I will not do anything.	10,6%

4. Discussion

The design of the questionnaire could have been improved by including an option where the users could write down their own response to add more detailed inputs. This option was chosen not to be included from the beginning, as it was assumed it would not be used and contingent responses would be of less value. The focus was on the concrete answers as they are easy to quantify. In this way, the different groups can be delimited. It could have been relevant to restrict the age groups and make several divisions of them. Additionally, it would have been an advantage to include an answer option about the use

of sundhed.dk - whether they use it or not, if not, the persons could be excluded from the rest of the questions.

The results from the questionnaire showed that 16.3% had never heard about the laboratory results site. It also showed a clear picture of what people would do if they do not understand their results. 43.5% understand their results, while 24.7% would contact their doctor and 10.6% would not do anything about it. By looking at these results, obviously there is an issue with understanding the information in the site, therefore an external assistance is needed. It is obviously a problem for many citizens to understand the communication of test results. It is however not so obvious whether further education will solve these problems but should be investigated more.

5. Conclusion

The aim of this article was to gain knowledge on how citizens understand laboratory test results, and to evaluate online methods for engaging citizens/patients in a participatory design activity. The investigations have been carried out using the methods previously reviewed with varying results. Unfortunately, the investigation with video observation did not provide useful information to achieve the goal of the article.

Through the questionnaire, an insight was gained into whether this is an actual problem or not. The answers to the questionnaire show that several participants experience difficulties with the site and there are differences in how they handle these. A future initiative could be to refine the video observation method, to find out where things are going wrong and what can be done to solve the problems during the user scenario.

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