Promoting Patient Engagement Through Personalized Hospital-Stay Summaries

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Abstract— **Studies have shown that engaging patients in their own care reduces hospitalization and improves quality of life. In this paper, we describe our work on creating personalized summaries of hospital stays that can serve as guides for patients' self-care.**

I. Introduction

Several studies have highlighted the importance of patient engagement for producing better health outcomes and lowering the rate of any long-term complications. However, if patients are not able to understand their health issues or are overwhelmed with details, they become reluctant in participating in their health care. Our approach for improving patient participation is guided by the research on patient-centered care, patient education, and patient engagement. We generate comprehensible summaries of patients' hospital-stay information that are personalized according patient's preferences, health knowledge, and their motivation for getting involved in self-care.

II. Background

Our work on generating personalized summaries for patients builds upon two modules that were developed during the earlier phases of our research. The first module focused on exploring the relationship between the medical concepts present in the physician and nursing documentation for a patient. It identified the candidate concepts that should be included in the summary and laid the framework for summary generation [1]. The second module was involved in determining whether a medical term needs to be further simplified or not. It used a combination of linear regression and clustering for predicting term complexity. For each complex term, the simplest definition out of all the definitions extracted from Wikipedia, WordNet, and the Unified Medical Language System (UMLS) is provided [2].

III. Personalization approach

After developing modules for summarizing information and simplifying medical terms, we focused on including patient's perspective in the summaries. There are 3 main factors that guide our personalization process: a) the health literacy of the patient (measured using the Rapid Estimate of Adult Literacy assessment tool), b) the motivation of the patient for getting involved in self- care, which is quantified by asking the patient to answer the survey questions from

Patient Activation Measure (PAM)[3], and c) the general traits and preferences of patients that were discovered through our analysis of open-ended interviews with 32 patients who were hospitalized with heart issues. Currently, the patient's knowledge of health information determines the amount of details that are provided, while the PAM controls the amount the empathy and encouragement that is included in the summary [4]. Fig.1 shows the personalization features as well as the steps involved in the creating the summaries.
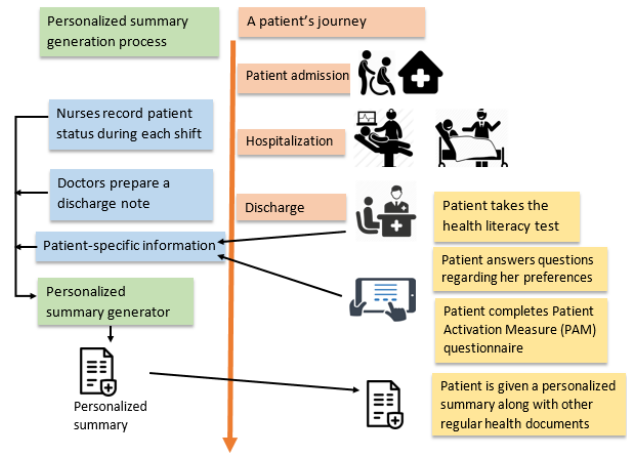

Figure 1.   Steps involved in the peronsonalized summary generation process

IV. Future work

In future, we will further analyze the patient interviews in order to identify the additional features that can be used for personalizing the summaries. We will also work on designing self-care technologies for patients.

References

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