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User Satisfaction with a Speech-Enabled Translator in Emergency Settings

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Abstract. In medical emergency situations, the language barrier is often a problem for healthcare quality. To face this situation, we developed BabelDr, an innovative and reliable fixed phrase speech-enabled translator specialised for medical language. Majority of participants (>85%) showed a positive satisfaction level using BabelDr.

Keywords. Fixed phrase speech-enabled translator, web application, user satisfaction, emergency settings

1. Introduction

Following the refugee crisis, European hospitals are increasingly confronted with patients who have no language in common with the medical staff. At the Geneva University Hospitals (HUG), 52% of the patients are foreigners and 8% speak no French at all. Miscommunication is a known threat to quality, security and equitability of medical care [1, 5]. Professional interpreters are not always available in emergency settings and considered to be expensive [2]. Generic technologies such as Google Translate (GT) are not reliable enough [3]. Medical fixed phrase translator lack of usability. In this context, the HUG in collaboration with the FTI, supported by the Private foundation of HUG, developed BabelDr, a speech-enabled fixed-phrase translator. Like other systems, it relies on pre-translated sentences, but includes speech recognition, allowing doctors to freely ask questions instead of searching for them in a list. Pretest showed that BabelDr is significantly more precise than GT and presents higher usability than MediBabble [4]. The aim of the present study is to evaluate BabelDr in real emergency settings. We focus on two aspects: global user satisfaction and the perceived quality of patient-doctor communication through the system, from the patient's and doctor's point of view.

2. Method

Patients were recruited between January and August 2019 in the outpatient emergency unit of the HUG. Inclusion criteria are: patients must speak a language available on BabelDr and must not have a French level sufficient for a standard diagnostic interview.

Patients are recruited in the outpatient emergency unit of the HUG. Exclusion criteria are patients who aren't able to read in their language. Each doctor followed a short training before using BabelDr. Participants are enrolled during daytime, fill a consent form and receive instructions on how to interact with the tool. During the consultation, the use of the tool can be interrupted by the doctor or the patient. Doctors can use the speech recognition system or directly select sentences in a list to ask their questions and the patients are required to answer non-verbally. After the consultation, all participants (doctors and patients) fill in a satisfaction survey paragraph.

3. Results

In total, 22 patients (age: M=41.18, SD=17.44) are eligible for this study and speak: Spanish (9), Arabic (4), Farsi (6), Tigrinya (2) and Albanian (1). Results on the satisfaction level show predominantly a positive feedback from both patients and doctors (>85%). Regarding patient-doctor communication, 68.2% of patients thinks the system allows them to completely explain the reason for consulting and 90.1% of doctors think BabelDr allows them to understand the patient's problem.

4. Discussion

We observe that most patients are able to communicate their reason to visit and doctors mostly understand the problem, suggesting that BabelDr is suitable for communication in emergency settings. User satisfaction is higher for patients than doctors, who can feel constrained by the available questions. Patients' dissatisfaction is related to misunderstood translations (due to level of literacy, text-to-speech quality and dialects).

5. Conclusion

Based on the remarks of patients and doctors, we continue to develop the tool by expanding coverage and adding more languages. A bidirectional system, allowing patients to answer by selecting pictograms, is also in development.

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