Care to Translate: Language Barriers at a Swedish Emergency Department

Sivan Menczel

Stockholm University/Department of Psychology
Master Thesis 30 credits
Psychology
General Master's Program in Psychology (120 credits)
Spring term 2019
Supervisor: Johnny Hellgren, Terese Stenfors (Karolinska Institutet)

Stockholms universitet

Table of Contents

CARE TO TRANSLATE
LANGUAGE BARRIERS AT A SWEDISH EMERGENCY DEPARTMENT

Care to Translate (CTT) is a mobile application developed to tackle language barriers in health care context. The aim of this study is to explore the possible psychosocial influences of implementing the use of the application, in the routines of an emergency department in Stockholm, Sweden. ED staff were individually interviewed about their experiences with non-Swedish speaking patients and prompted to use the mobile application while receiving a full access to the most updated version, on their mobile devices. After several months, ED staff were interviewed about their experiences with CTT, in interactions with non-Swedish speaking patients. Interviews were recorded and analysed thematically. Results show that language barriers are expressed by ED staff in terms of a major problem and the possible strategies they may use to overcome it, while solutions are often inappropriate or unsatisfactory. A clear gap was revealed in communication over language barriers. Results also show that CTT was used successfully to understand patient's condition and explain about procedures, which promoted cooperation. Practical issues and lack of implementation were identified as main obstacles for widespread use of CTT at the ED.

KEY WORDS: language barriers, healthcare, mobile application, evaluation

Introduction

Cultural diversity in health care

Cultural diversity in health care within Europe is growing, with migration and asylum seekers (Müller, Klingberg, Srivastava, & Exadaktylos, 2016; Sandhu, Bjerre, Dauvrin, Dias, Gaddini, et al., 2012). The state migrants have left their homeland may impact their health, they may face dietary changes and unfamiliar risks, and the process of migration and integration may pose social and psychological challenges (Ozolins & Hjelm, 2003; Sandhu et al., 2012). Occupational risks and contagious diseases may jeopardize migrants' conditions, and they may face challenges with implications to their mental health (Hudelson, Dao, Perneger, & Durieux-Paillard, 2014; Müller, et al., 2016; Sandhu et al., 2012). Migration in EU present great heterogeneity socially, economically, politically, legally and culturally. Asylum seekers and refugees typically being the most vulnerable group, as they may face challenging conditions, health hazards and trauma (Müller, et al., 2016; van d. Muijsenbergh, van Weel-Baumgarten, Burns, O'Donnell, Mair, Spiegel, & MacFarlane, 2014). Migrants may experience major life changes that influence their health and might find themselves in a greater need for health care services, than the majority population, which they struggle to communicate (Shaw, Huebner, Armin, Orzech, & Vivian, 2009).

Healthcare systems may struggle to accommodate to the needs of diverse populations. For example, with availability of information and material in different languages or the availability and use of interpreting services (van d. Muijsenbergh, et al., 2014). Solutions and resources allocated and developed for that purpose, may fail to integrate into existing structures, and health care professionals may not receive the information necessary for them to use such resources appropriately, if at all (Hudelson, et al., 2014). Immigration is also associated with low health-literacy, and language barriers influence the extent to which migrants and minority populations may receive sufficient medical information, raise awareness for health risks and develop health-literacy (Hultsjö & Hjelm, 2005; Shaw et al., 2009). Cultural diversity overall has been shown to account for differences in the way people may be using health care systems

(Guess, Tanabe, Nelson, Nguyen, Hauck, & Scharf, 2018). Cultural diversity in health care, has been associated with delayed help seeking behavior, which might be related to perceived discrimination and mistrust. Cultural diversity is also associated with treatment patterns and more severe patient's outcome (Anderson, Scrimbshaw, Fullilove, Fielding, & Normand, 2003; Shaw et al., 2009). Migrants use emergency services more than natives, even when matched on socio economic status and health conditions (Credé, Such, & Mason, 2018**;** Guess, Tanabe, Nelson, Nguyen, Hauck, & Scharf, 2018; Müller, et al., 2016). Healthcare professionals have expressed great concern, yet programs and interventions to deal with these issues are limitedly implemented. This might be due to the limited knowledge and research available on the subject (van d. Muijsenbergh, et al., 2014).

Language barriers in health care

Effects

Overall clarity, information about conditions and care process were most commonly reported domains lacking in communication, by migrants (Shaw et al., 2009). Language barriers are associated with intercultural awareness, cultural insensitivity, discrimination, patient satisfaction, patient outcomes, patient compliance, misdiagnosis, quality of assessment, inappropriate care, inappropriate medication, delay and ineffective treatment and health care services, as discussed further below (Anderson et al., 2003; Brogan, Adriaenssens, & Kelly, 2015; Hultsjö & Hjelm, 2005; Shaw et al., 2009; Tucker, Herman, Pedersen, Higley, Montrichard, et al., 2003). All of which may raise important ethical considerations regarding misconduct, related solely to lack of communication capabilities (Brogan, Adriaenssens, & Kelly, 2015; Carnevele, Vissandjee, Nyland, & Vinet-Bonin, 2009). Effective patient-provider communication has been identified to be crucial for productive health care service and outcome (Carnevele et al., 2009; Tucker et al., 2003). Effective communication has been identified as key in diagnosis, particularly in mental health care (Sandhu et al., 2012). A study in the US found, non-English speaking patients were more likely to report problems with communication (Carrasquillo, Orav, Brennan, & Burstin, 1999). In the US, language barriers shown associations with limited access to health care, in terms of care needed and provided, knowledge about insurance, prevention, eye and dental care and general examinations (Carnevele et al., 2009). Also patients communicating with health care providers over language barriers, may understand less about their condition and treatment and shown to be less likely to comply and follow up, compared to patients with higher level of English. Patients with low English proficiency (LEP) found more likely to be excessively tested for diagnoses and experience medical errors compared to patients with higher level of English (Carnevele et al., 2009; Jacobs, Chen, Karliner, Agger-Gupta, Mutha, 2006).

The adverse effects of language barriers on health care both in terms of access and quality are well established in literature (Masland, Lou, & Snowden, 2010; Sandhu et al., 2012). Even in the US, non-English speaking population is growing, increasing interpretation needs in health care. Type of interpretation was found to effect quality ratings of patients', providers' and interpreters' experiences, as well as time utilization (Locatis, Williamson, Gould-Kabler, Zone-Smith, Detzler, 2010). Remote interpreting services have emerged as cost and time effective solution to short simple exchange of information and have shown to improve quality of care by increasing professionalism in interpretation (Masland, Lou, & Snowden, 2010). For example, an intervention offering alternative to fill in the gap created by limited and complex interpreting resources, such as remote simultaneous medical interpreting (RSMI), has shown to increase patients' reported privacy and satisfaction (Gany, Leng, Shapiro, Abramson, Motola, et al., 2007). Patients' privacy may be considered instrumental for their willingness to disclose sensitive information that might be important for treatment (Gany et al., 2007).

Ad-Hoc Interpreters

Communication over language barriers in Sweden was identified as major issue in pediatric care, alongside interpreters and professionalism in interpreting services. High rates of use of un-professional ad-hoc interpreters such as children and relatives were reported in research (Granhagen, Tiselius , Wenemark, Blomgren, Lützén, & Pergert, 2018). As appropriate professional medical interpreters might not always be an option, ad-hoc translators are often used, raising additional ethical considerations, such as violation of privacy to say the least (Carrasquillo et al., 1999; van Eechoud, Grypdonck, Leman, Van, Deveugele, & Verhaeghe, 2017). The use of relatives and friends, children in particular, as interpreters within healthcare services, poses a major problem and exposes culturally diverse patients to additional risks (van d. Muijsenbergh et al., 2014). Adverse effects found in prior research, of ad-hoc interpreters, are such as low quality of interpretation, patient privacy and various ethical considerations, for example children interpreting for their parents when domestic violence might be an issue (Masland, Lou, & Snowden, 2010). Relatives may vary in levels of disclosure when interpreting for their family members. Perceptions of patient's ability to understand and emotional strength, and for the sake of maintaining positive attitude, were reported to influence this variation (van Eechoud et al., 2017). Relatives interpreters may fail to communicate bad new, solely to avoid the emotional constraint of telling them. Furthermore, patients may get entirely excluded from communication with healthcare providers when relatives act as interpreters (van Eechoud et al., 2017).

The use of unprofessional ad-hoc interpreters shown to be associated with higher patient risk, low quality of communication and treatment as well as violation of confidentiality (Bischoff and Hudelson, 2010; Flores, Abreu, Barone, Bachur, & Lin, 2012; van Rosse, de Bruijne, Suurmond, Essink-Bot, & Wagner, 2016). Bischoff and Hudelson (2010) found in the Netherlands, that by their sample of health care providers, ad-hoc interpreters were overly used, while professional interpreters were underused. Particularly with Turkish, Arabic, Portuguese and Spanish, ad-hoc interpreters were more likely to be used (Bischoff & Hudelson, 2010). Factors found to influence the use of ad-hoc interpreters were the availability of bilingual staff, attitudes towards interpreting services and costs (Bischoff & Hudelson, 2010). Authors conclude that according to their data professional interpreters were often the last resort. Which they relate to limited knowledge regarding the impact of language barriers on health care provided, and the risks of using ad-hoc interpreters (Bischoff & Hudelson, 2010). The use of ad-hoc interpreters overall shown association with lower, patient as well as provider satisfaction compared with using professional interpreters. Ad-hoc interpreters were found to make errors with significant clinical consequences, and the use of such interpreters found to increase misdiagnosis and low quality of care (Flores et al., 2012; Jacobs et al., 2006; van Rosse et al, 2016). Ad-hoc interpreters may reduce quality of communication unintentionally due to misunderstanding, lack of medical knowledge or embarrassment (Locatis et al., 2010). Participants also reported relatives acting as interpreters to be insufficient, mostly due to level of language proficiency. Ad-hoc interpreters were reported often to be used in connection with delayed professional interpreting services (Krupic, Hellström, Biscevic, Sadic, & Fatahi, 2016).

Services, Interventions and Theory

Research in Sweden shows that difficulties faced by health care providers in communicating over language barriers, are often experienced and reported, in using existing resources and tools, as well as in lack of information and integrated routines to deal with culturally diverse patients (Granhagen et al., 2018). Healthcare providers found to experience missing information when communicating with interpreters. While nurses often do not use interpreting services at all and were found to be more likely searching for other solutions. This might be related to lack of healthcare professionals training in communication over language

barriers, particularly nurses (Granhagen, et al. 2018). Reported by interpreters, facilitating communication over language barriers, entails cultural, intellectual and emotional adjustments, to appropriately accommodate for the needs of migrants (Granhagen Jungner, Tiselius, Lützén, Blomgren, & Pergert, 2016).

Little is known about interventions and programs set to tackle language barriers in health care (van d. Muijsenbergh, et al., 2014). Most intervention studies on LEP in health care, for example, are such that compare bilingual providers and professional third person interpreters. Other studies are focused on information and training of health care providers, about the use of interpreting services (Jacobs, et al., 2006). Interpreting services were found to improve compliance and follow up, and increase use of primary care and preventive care. Professional interpreters were found to reduce costs and use of resources at ED, compared with ad-hoc interpreters or no interpreting at all (Jacobs, et al., 2006). Raising awareness and training of health care staff in using interpreting services shown to be effective and increase the use of such services (Jacobs, et al., 2006). Interventions developed to tackle language barriers in health care, overall found to improve outcomes of LEP patients in the US, though the extent of the effect is unclear (Jacobs, et al., 2006). Outcomes and measurements related to language barriers in health care shown inconsistent in prior literature as well as level and quality of interpreting services studied. For example the interpreting quality of health care staff as ad-hoc interpreter and the cost of them not doing their main job, constitute a current knowledge gap (Jacobs, et al., 2006).

Interpreting services overall were found to be often unavailable and often patients in need of such services are left without. Also the delays caused by setting up interpreting services may have clinical implications. Subsequently providers may develop misperceptions about professional interpreting and resort to ad-hoc solutions, body language and excessive testing (Masland, Lou, & Snowden, 2010). The need for interpreting services may also be underestimated, as patients avoid admitting their low language proficiency, due to stigma and discrimination, and feelings of being a burden to health care providers (Steinberg, Valenzuela-Araujo, Zickafoose, Kieffer, & DeCamp, 2016; van Rosse et al., 2016). One theoretical framework that had been used in prior research, regarding communication in healthcare context, known as the Communication Accommodation Theory (CAT), is relevant when discussing language barriers in this context, as it emphasizes intergroup and social elements of communication, such that are crucial for culturally diverse patient population (Giles, 2008; Meuter, Gallois, Segalowitz, Ryder, & Hocking, 2015; Watson, & Gallois, 1998). According to CAT, patients' intergroup goals such as social approval may compete with their personal goals of receiving appropriate care, when communicating with healthcare professionals. Moreover, different interpersonal goals such as positive regard and other emotional needs, may conflict with their need for effective communication (Giles, 2008; Meuter et al., 2015; Watson, & Gallois, 1998). There is overall lack of knowledge and training of health care providers in communicating over language barriers, in terms of services available and how to use them but also lack in awareness of the adverse effects of inappropriate solutions. Technological solutions may offer such availability that could fill in some of the gaps, while being cost and time effective, if implemented adequately (Masland, Lou, & Snowden, 2010). Both the need for careful evaluation of interventions addressing language barriers in health care, as well using new technological tools in such interventions were suggested in prior research (Anderson et al., 2003; Brogan, Adriaenssens, & Kelly, 2015; Gany et al., 2007).

Communication over language barriers

Language barriers are the most basic and frequently cited aspect of health care systems, in accommodating for cultural diversity, with interventions often offering development of interpreter services and patient education materials. Yet the effectiveness of interpreters or

bilingual providers is somewhat unclear (Anderson et al., 2003; Shaw et al., 2009). In a study with a randomized, controlled semi blinded design, comparing bilingual health care provider, face-to-face interpreters and interpreting service over the phone, an objective measure was used. Researchers tested how well patients understood the diagnosis given to them, as a measure of quality of communication over language barriers (Crossman, Wiener, Roosevelt, Bajaj, & Hampers, 2010). The study was taken place at a pediatric ED in the US, with Spanish being the only language studied. Up on discharge, families were asked to describe the condition of the child (Crossman et al., 2010). While no significant differences were found on the diagnoses measure, participants with face-to-face interpreters rated the visit lower than the others, and participants with bilingual providers were found to be less satisfied with the quality of language services (Crossman et al., 2010). While the different service modalities did not differ significantly, compared with bilingual health care providers, overall satisfaction was high on all groups. Authors conclude that differences in modalities of interpreting services are not important as having such services in use at all, so to ensure adequate exchange of information (Crossman et al., 2010). Being able to see the interpreter, better understanding and feeling more personal were found to be the main reasons, face-to-face interpretation service was preferred by patients. Face-to-face interpretation was found to be preferred by providers as well, while technical issues were reported to be distracting and restricting communication (Locatis et al., 2010). Patients' understanding may be compromised by remote interpreting services, for example questions that comes up after the remote service was concluded, may be left unanswered. Face-to-face professional interpreters shown overall superiority. However results suggest that modalities of professional interpreting services overall do not differ significantly (Locatis, et al., 2010). Professional interpreting has shown to reduce by half the risk for error of clinical significance, compared to no service or ad-hoc interpreters, which include bilingual personal (Flores et al., 2012)

Language barrier shown association with discrimination and prejudice. Patients in need of unavailable interpreting services reported anger, sadness, frustration, disappointment stress and anxiety in this regard (Balakrishnan, Roper, Cossey, Roman, & Jeanmonod, 2016; Steinberg et al., 2016). Healthcare providers acting as interpreters, was found to elevate stress for both patients and providers, as they may struggle to balance the roles of interpreter and healthcare provider, while facing conflicting intergroup goals as suggested by CAT (Giles, 2008; Krupic, et al., 2016). Language proficiency and neutrality were found to be main factors influencing communication outcomes (Krupic, et al., 2016). LEP patients in the US were found to be overall less satisfied with health care. While providers are less satisfied with the interactions in which they must communicate over language barriers (Jacobs, et al., 2006: Steinberg et al., 2016). Patient satisfaction is associated with the feeling of being understood (Balakrishnan et al., 2016; van d. Muijsenbergh, 2014). While patients' satisfaction with health care provider communication, might be measured by the extent of which patients experienced they were listened to and understood, health care professionals were found to express doubt regarding whether information given was adequately received (Gany et al., 2007; Hultsjö & Hjelm, 2005). However, the effects of language barriers on health care are yet to be unraveled (Jacobs, et al., 2006).

Emergency Department Context

Communication problems related to language and unavailability of interpreting services were found in emergency care more than in primary care (Steinberg et al., 2016. Language barriers are a most common communication problem reported in Emergency care, in which staff and patient interaction is often of short duration. Language barriers shown to increase costs at ED as well as handling time (Jacobs, et al., 2006). Language barriers were also found to be associated with patients' overall satisfaction in emergency care, particularly with

perceived respect and courtesy as well as quality of information given at discharge (Carrasquillo et al., 1999). At Triage in the US LEP patients and their healthcare providers were found to perceive communication significantly less effective compared with English speaking patients. LEP patients were found significantly less satisfied with the service at Triage (Balakrishnan et al., 2016). Nurses were found to perceive patients' English proficiency higher than patients' own ratings of their proficiency. Authors suggest patients may hide their LEP to avoid stigma and discrimination. They conclude that this in combination with time constraints, might lead to underestimation of the need for available interpreting resources and the limited utilization of such by Triage personal (Balakrishnan et al., 2016).

Patients in Emergency Care

Migrants were reported by ED staff in Sweden, to visit the ward often at evenings and nights, which baffled the staff but also led to frustrations, as finding suitable interpreters is a challenge, even more so at these times. (Hultsjö & Hjelm, 2005). Research shows that both in Europe and in the US, refugees who do not speak the local language and overall culturally diverse populations may use ED more than native population, in terms of resources, time and for less appropriate issues, such that can be treated better in primary care (Credé, Such, & Mason, 2018**;** Guess et al., 2018; Müller, et al., 2016). These trends may suggest that there are barriers for migrants' use of general health care services, particularly for migrants from outside the EU (Müller, et al., 2016). Factors that were found related to these trends are such as short duration of stay in the current country and above all language barriers, as well as health literacy, for example knowledge about the local health care system. It has been suggested that integration conditions such as unstable employment situations may influence the inconvenient visiting hours by migrants at ED, which also increase their likelihood to seek help at ED (Credé, Such, & Mason, 2018). In a study from the US, refugees' level of English when entering the country, also shown association with the use of ED instead of primary care, underlining the role of language barriers in this context (Guess et al., 2018).

The use of patients' relatives and friends as well as non-professional hospital staff as interpreters may jeopardize effective medical communication, diagnosis, procedures, treatment, patient's privacy and family norms, as may be suggested by CAT, considering the conflicting goals both on group and personal levels, that such involvement may entail (Giles, 2008; Meuter et al., 2015; Watson, & Gallois, 1998) Research set to explore differences between patients who receive professional interpreting services (IPs) and those who have not (NIPs), compared to a control group of English speakers matched by type of symptom and demographics such as age, gender and ethnicity (Bernstein, Bernstein, Dave, Hardt, James, Linden, & Safi, 2002). Study shows satisfaction was high for patients who could speak directly to their care providers, and least for patients who needed interpreting services that were unavailable to them. IPs were found to receive more primary care and specialty clinic referrals, and follow up with clinic visits more than both other groups. IPs were also the least to return to the ED. The careful matched samples suggest that language barriers were the main cause for the differences in outcomes, and therefore have a significant impact on care provided and care seeking patterns. Authors conclude that the results also suggest that professional interpreting services may indeed effect quality of care and promote equity at ED by increasing clinic visits in exchange for return to the ED as a primary health care (Bernstein, et al., 2002).

Nurses in Emergency Care

Lack of resources in communicating over language barriers in health care is especially felt by nurses, and particularly critical in the context of emergency care. This is due to time constraints, and the unpredictable nature of ED, where accuracy and effectiveness can be crucial to patient outcome (Nailon, 2006). ED is associated with limited nurse-patient interactions in a

high-technology setting. A qualitative study in Sweden explored experiences with culturally diverse patients in emergency care, as the field is not widely studied yet. Language barriers emerge as main source of difficulties causing problems in communication and misunderstandings. Also problematic is the use of unprofessional ad-hoc interpreters (Ozolins & Hjelm, 2003). Time and schedule limitations were found to be major difficulties in emergency care of culturally diverse patients, at the HUG (hospital university of Geneva). Such difficulties were reported at the Swiss hospital, influencing for example the use of face-to-face interpreters. At the same time, language barriers were reported to be the most important source of difficulties in treating migrants, in 2010 and 2013 (Hudelson et al., 2014). The project at the HUG provided information to health care professionals about interpreting resources available at the hospital between these years. The intervention shown, through respondents' reports increase in the use of professional interpreters compared to a decrease in use of bilingual staff, however the use of relatives and friends as ad-hoc interpreters did not change. Information given throughout the project intended to improve attitudes and knowledge related to communication through language barriers. Such improvement as preference for professional interpreters over other ad-hoc options were reported. The authors emphasize the conflict posed by time constraints and language barriers as major sources of difficulties at the ED, as interpreting services are time consuming, particularly in terms of logistics. Authors suggest that the stable use of patients' family and friends as interpreters, may be due to time constraints. However they conclude, professional interpreters, face-to-face, improve quality of communication and treatment and are recommended particularly for long complicated conversation (Hudelson et al., 2014).

Nurses at ED, have expressed in research difficulties communicating through a third party, while caring for non-English speaking patients in the US. They have reported, to be struggling communicating concern and personal emotional involvement in their patients' well-being, while having to demand and prompt compliance. This was not reported by bilingual nurses who spoke the patient's language. However bilingual nurses have expressed in research the need of professional interpreting upon complex medical presentations beyond their vocabulary (Nailon 2006). Having to go and search for interpreters could be felt by nurses as abandoning the patient. Nurses often use body language and other ways of examination and proceed with care without speaking to the patients nor their relatives at all (Nailon, 2006). Nurses often feels that interpreting services are costly resources better saved for physicians. Bilingual nurses were found to be generally more aware of the impact, language barriers had on the information they have gotten out of patients. However nurses overall reported uncertainty regarding conclusions they might draw out of their examinations, while communicating over language barriers. Nurses reported sadness over the compromised care atmosphere due to interpreters' detachment. Nurses at the ED overall reported not being able to do their best when caring for patients, while communicating over language barriers, as rapport and trust with patients become difficult to establish (Nailon, 2006).

Nurses at Swedish ED reported difficulties in reading body language, uncertainty over whether patients understand what they were trying to communicate and uncertainty over patients' conscious state (Ozolins & Hjelm, 2003). Nurses reported uncertainty over whether information was given and received correctly if at all, when using relatives as ad-hoc interpreters. For example, when such interpreters answer a question without translating it first to the patient (Ozolins & Hjelm, 2003). Culturally inappropriate ad-hoc interpreter, was reported as a problem, in relation to a sensitive political conflict, causing negative emotionally loaded situation. Yet unprofessional ad-hoc interpreters were often used (Ozolins & Hjelm, 2003). Language barriers in the Swedish study found to disrupt assessment and anamnesis, while exchange of information was reported as uncertain. Misunderstandings may cause delays and may entail indirectly additional risks (Ozolins & Hjelm, 2003). Nurses expressed anxiety

over delays in treatment and how that may influence patients' condition. The Authors conclude that language barriers are the main issue in caring for migrants at ED in Sweden, and that improvement in communication may reduce negative affect due to misunderstanding as well as increase quality in emergency care of culturally diverse populations (Ozolins & Hjelm, 2003). Staff in several Swedish emergency departments, reported unexpected responses from patients, which they experienced to be associated with language barriers. ED staff reported difficulty to determine whether non-Swedish speakers were actually emergency cases, resulting in non-emergency ambulance runs, related to language barriers. Emergency staff expressed much frustration, due to difficulties accommodating to the needs of suffering immigrants (Hultsjö & Hjelm, 2005). As suitable interpreters are scarce in emergency care context, sign language and facial expressions are commonly the way, emergency staff communicate with non-Swedish speaking patients (Hultsjö & Hjelm, 2005). At the same time, non-verbal communication was reported to be severely compromised by cultural differences. Emergency staff in Sweden have expressed the need and wishes for translation services 24 hours a day (Hultsjö & Hjelm, 2005).

Care to Translate (CTT)

CTT was created in response to a growing need felt by medical students, who became inspired during medical language training, focused on treating patients from different cultures. Interviews with CTT staff were conducted for this study, to gain deeper understanding of their background, process and intentions for the development of CTT. Reflecting on their personal experiences as healthcare professionals, members of the team developing the app, have expressed concerns regarding language barriers in healthcare, which they perceive as a problem for patients who cannot communicate in neither Swedish nor English. CTT staff aspire to reach a greater spectrum of healthcare professionals who may experience language barriers when treating patients from other cultures, to promote equality in treatment and health. Patients' integrity is particularly important to CTT developers, in regards to information about procedures that require cooperation and consent. CTT therefor consists of mainly yes and no questions and information. For example, "have you had surgery?" and "I will take some blood samples". Phrases typically formulated by a Swedish native, and then translated to a target language by a suitable interpreter. A third person that did not see the original Swedish phrases, finally translates back to Swedish to insure the quality of the translation.

The first screen upon starting CTT, shows blocks with the available languages, written in both user language and target language respectively. By clicking on a language, users are presented with a list of categories such as: presentation, general terms, front desk, symptoms, diagnosis and information, medications, the body, daily needs, surgery and more. Words, phrases and questions relevant to healthcare contexts, are divided into categories for easy navigation and presented in the user language, and a search field appears constant at the top of the screen. After choosing a category, words and phrases can be seen in both languages (See figure 1). When clicking on them, words and phrases sound in target language. CTT originally was developed in Swedish, and now available in 4 user languages: English, German, Swedish and Turkish. Amongst 21 available target languages are Arabic, Dari, Finnish, Italian and Pashto to name a few. The original basic version includes about 140 phrases. CTT staff are aware that the app is limited in facilitating an actual conversation. They consider the product and the company to be at early developing stages, in which profound healthcare professionals' input is valuable and meaningful. User friendliness is one of main issues for the developers of CTT. The app is meant to be intuitive to the extent that no introduction nor explanation will be necessary, for a sufficient use. The mobile application CTT is not intended to replace any existing services in health-care. Currently CTT is an open-source mobile app used mostly by nurses in Swedish hospitals (https://www.caretotranslate.com).

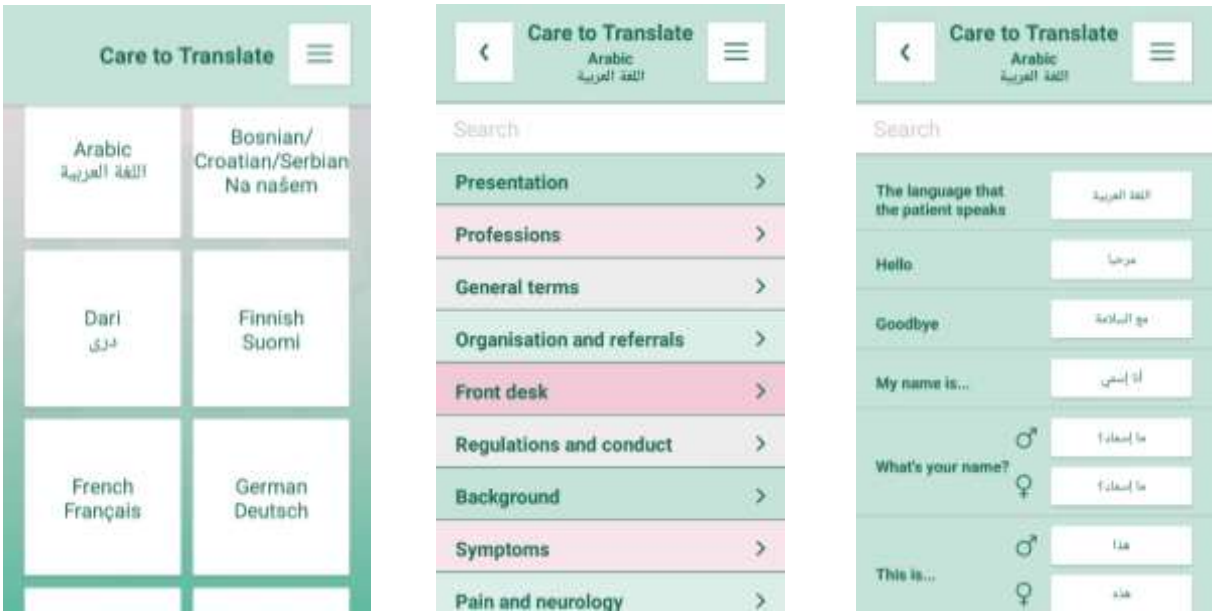

Figure 1. Three Screenshots of CTT. First alternative languages, followed by a list of catagories and finally words and phrases in both user and target languages.

Aim

The aim of this study is to identify possible psycho-social effects and eventually relevant outcomes for evaluating the implementation, of CTT application in routine healthcare services. This will be done by exploring the subjective experiences of emergency department staff before and after having used the application in their daily routine. Additionally, the study will explore emergency staff experiences with the application, as a communication tool. The research questions are as follow:

- How do emergency department staff experience language barriers when meeting non-Swedish speaking patients?

- How do emergency department staff experience the use of the application CTT when meeting non-Swedish speaking patients?

Method

Design

The focus of this study are the various subjective experiences of the respondents when dealing with non-Swedish patients and using CTT, in their natural settings at the ED, where the app is intended to be used in real life. The use of CTT had never been evaluated in a real life healthcare setting before. Therefor the qualitative psychological phenomenology approach was used, with which language barrier and multilingual interactions in healthcare context are explored. This done through individual interviews, common to psychological phenomenology research (Creswell, 2013). Contextual background was gathered in literature throughout the study, while inspiring to maintain an outsider perspective, considering author limited familiarity with the issues and context studied. The investigation takes a qualitative explorative approach, using one on one semi-structured interviews (Creswell, 2013; McGrath, Palmgren, & Liljedahl, 2018).

Sample

The inclusion criteria for sampling was participants' status as healthcare professionals employed at the ED, where the study was conducted and CTT was made available to the staff. The purpose of sampling was to find people who may have encountered language barriers in healthcare context and may benefit from the use of CTT, when dealing with non-Swedish speaking patients. That is, potential users of the mobile application. Considering the short time-lag of the study and difficulties to manage time for interviews in an unpredicted, stressful ED environment, a convenient sample was maximized in size and variation, striving to interview as many staff members as possible both initially and at a 5 months follow up (Creswell, 2013). For this reason the location was chosen at the participants working place, to make it as easy as possible for them to participate. The pilot group of 16 healthcare professional working at the ED, are volunteers who expressed interest in the mobile application. Some of the participants were involved in what they refer to during interviews as the 'I-pad project'. The I-pad project intended to integrate several I-pads as a routine instrument at the ED. The plan was to make administrative applications mobile to the staff alongside other useful mobile applications such as CTT. However, during interviews participants reported that in January the I-pads were taken away for some time and when returned, they were restored to factory settings and CTT was deleted. Still a few participants manage to use CTT on an I-pad as intended, while other used it on their private mobile phones. The pilot group of 16 healthcare professionals received access to the full most updated version of the application on their mobile devices from December 18th, 2018. Email contacts were established through CTT staff member, in collaboration with one of the staff working at the emergency department, which were involved in setting up the pilot implementation, including this evaluation study.

Procedure

A pilot implementation of CTT was set at a Stockholm emergency department, during winter 2018-2019, for which the author was contacted and offered to evaluate. An interview guide to answer the first research question, was constructed, for the initial interviews. After the initial analysis, a follow up guide was constructed to answer the second research question, in relation to the results of the initial interviews. Additional 3 interviews were conducted with members of the team developing CTT, to enquire about their perspective, expectations and needs relevant to this evaluation. Data from these interviews was systematically coded and used in the introduction as well as in the creation of the second interview guide. The interview guides include open ended questions (See appendix). All interviews were conducted in Swedish and recorded on a mobile device. The author is not a native Swedish speaker, and neither are 2 of

the respondents. All interviews were conducted, transcribed and analysed by the author, using an inductive thematic analysis based on qualitative methodological guidelines found in literature (Braun & Clarke, 2006; Creswell, 2013).

Of the 16 health-care professionals working at the ED that were contacted by email, only 7 were available and ready to be interviewed at the initial stage of the study, between the 23rd of November and the 12th of December, 2018. The 7 participants that were interviewed at the initial stage of the study, consist of 6 nurses and 1 doctor. The initial group of participants consist of 3 multilingual healthcare professional, that are used to step in and interpret, for patients speaking their additional languages (see table 1). Participants are all females but 1 male nurse. They all had experiences working in other wards or departments, before they arrived to the current ED, and all been working at the same ED for over 2 years. All 7 stated that they had never tried the application before or on few occasions only. Interviews were conducted at their work place before receiving access to the full updated version of the application. During April 2019 follow up interviews were conducted with 5 of the participants that were interviewed in December, and additionally 2 nurses from the original mailing list were interviewed, about their experiences with CTT.

	Role	At the ED (Y)	Working Hours	Gen	Lang.	Initial	Follow up	CTT use
1	Nurse, management nurse	6	Day, evening, night	F		X	X	Phone 2-3 times
2	Doctor, management, supervisor	5	Day, evening, night	F	X	X		
3	Assistant nurse, coordinator	15	Day and evening	F	X	X	X	None
4	Nurse, development, administration	3.5	Day, evening, night No weekends	M		X		
5	Nurse, development	2	Day and evening	F		X	X	Phone 2-3 times
6	Nurse, management nurse, coordinator	3.5	Day and evening	F	X	X		
7	Nurse	3	Day, evening, night	F		X	X	Phone 1 time
8	Nurse	2.5	Day and evening	F			X	I-pad 4-5 times
9	Assistant nurse	2	Day, evening, night	M			X	I-pad /Phone 10 times

Table 1. List of participants by role**,** years at the ED, working hours, gender, interpreting an additional language, participation and CTT use during study period.

Analysis

The initial interviews were transcribed in verbatim within a month from their occasions. The transcribed interviews were systematically coded in relation to the meaningfulness, text segments may entail for the first research question. This was followed by an emergent thematic coding, in which 15 themes were identified. With the help of senior researcher and co-supervisor of this study, who read the transcribed interviews, themes were organized into the final structure of the first part of the results. The data was then re-organized by themes and according to the structure of the analysis, till a satisfactory result was achieved. The result was then formulated and themes defined in detail, and finalized through writing and complementing with a selected quotes taken from the data (Braun & Clarke, 2006; Creswell, 2013). The results was used to develop the follow up interview guide (See appendix). All follow up interviews were conducted on the same day but 1, that was conducted a week before. All were transcribed within a week from the last interview occasion. Analysis was done in similar way as the initial interviews, with 35 themes and sub-categories identified at the second stage. However, the organization of themes into a holistic structure, was done in relation to the first part of the results and combined, to underline a clear connection between the initial and follow up results. That is, experiences with CTT were expected to influence and be influenced by experiences of interactions with non-Swedish speaking patients, as the application intended to be used in such interactions. Data from the initial interviews, regarding expectations and thoughts participants had of CTT, was coded as one theme and eventually used on the second part of the results, combined with the data from the follow up interviews. This data was used on the follow up analysis, being meaningful to the second research question. Data from the follow up interviews identified as meaningful for the first research question, was added and organized into the suitable themes of the initial analysis, though no such data changed the result significantly.

Ethical Consideration

Participants received full information regarding the purpose of the study and the procedure. They had the opportunity to ask questions throughout the process and may contact the project responsible at will. Participants were asked for consent and were reassured regarding the voluntarily nature of their participation, and the possibility to withdraw their participation at any time. All personal information was handled discretely and in accordance to GDPR guidelines. The study was approved by the Swedish Ethics Committee in Stockholm.

Results

Structure

The initial interviews, that were conducted prior the implementation of CTT at the ED, were used to answer mainly the first research question, exploring language barriers through experiences of ED staff with non-Swedish speaking patients. The two main themes identified in these interviews regarding language barriers, were Problem and Solutions. This to say, ED staff experienced language barriers in interaction with non-Swedish speaking patients as a major problem. The experiences reported by ED staff are often expressed as search, attempts and dealings with different solutions to the problems, language barriers may entail on the situations, in which they come in contact with non-Swedish speaking patients (see table 2). CTT in this study is presented to participants as a new solution, which they may help to evaluate. The results answering the second research question present a deepening into an alternative solution to language barriers, namely CTT. Moreover the second part of the results presents ED staff experiences as identifying *Practical* and *Psychosocial Implications* of the use of CTT in interactions with non-Swedish speaking patients (see table 2).

Language Barriers at ED	***Problem***	Extent	*- Frequency* *- Difficulty*	
		Practical Impacts	*- Anamnesis* *- Time* *- Examination*	
		Emotional impacts	*- Frustration* *- Stress and anxiety*	
	Solutions	Body language	*- Use* *- Implications*	
		Bilingual Staff	*- Use* *- Implications*	
		Relatives and Friends of the Patient	*- Use* *- Implications*	
		Professional Interpreters	*- Use* *- Implications*	
		CTT	*Practical Implications*	Use and effects *(anamnesis, information, time and gesture)* Alternative solutions *(staff, Relatives and interpreters)* Technical *(phone and I-pad project)*
			Psychosocial Implications	Communication *(provider and patient experience)* Limitations *(patient expressions, nuances, contact)* Implementation *(needs and ways, expectations)*

Table 2. Thematic map of language barriers as experienced by ED staff and their evaluation of CTT as an alternative strategy.

Language barriers when meeting non-Swedish speaking patients

Problem

ED staff unanimously described language barriers as a problem. They experienced *The Extent of the Problem* as being very frequent, as in daily and in every single encounter with non-Swedish speaking patients. These encounters, as participants reported, are very common, and several staff members expressed the notion that in their ED it is especially culturally diverse patient populations, compared with previous experiences they had. The problem was said to be so common, to the extent that it is accepted as part of the job.

> *Dem är rätt många (icke svensktalande patienter) som kommer hit faktiskt om man ska jämföra med andra sjukhus som jag har varit på och nu då jag är här.*
>
> *Jag tror att man på något sätt har blivit ganska van vid det.*
>
> *Sedan kan det ju från att inte kunde något svenska till att kunna lite svenska men det är det dagligen. Så det är ett problem. Jag tycker att det är ganska stort problem.*

The Extent of the Problem was also expressed in terms of level of difficulty. ED staff experienced language barriers problematics as very difficult and extremely challenging.

> *Det kan ju bli väldigt svårt om man ser att patienten är väldigt sjuk. Man ser att den kanske blek och svag och kallsvettigt och då gäller det att snabbt få reda på varför patienten är här. Då kan det bli väldigt svårt om inte patienten kan prata svenska.*
>
> *Jag tror det handlar om, mer stressig situation. Det blir stressigt att allt tar längre tid. Att det är svårt att förmedla vad man ska göra. Och så om vi har svårt att förmedla så kanske blir patienter irriterad. Det blir en svår arbetsmiljö på jobbet.*

ED staff described language barriers as a problem in terms of *Practical Impacts,* it imposes on their interactions with non-Swedish speaking patients. *Practical Impacts* were reported above all, during the first meeting with the patient at Triage, where staff struggled to establish appropriate anamnesis, accord and alliance with patients. Time delays and extra testing were reported in this context.

> *Det är nästan svårast just där (receptionen), sedan de andra, de kan ju ringa till alltså, tolk förmedlingar. … Men så där första biten är väldigt viktigt att få fram vad det är man söker för och den är svår alltså.*
>
> *T.ex. någon som kommer och söker för buksmärta, bröst smärta så att det är jag kanske, om den personen hade kunnat berätta sina symptom utförligt på en gång så hade jag kanske kunnat tänka det här är det besväret, men istället så få jag gå omvägar och liksom testa mig fram och leta. Allting tar mycket längre tid när man inte får fram.*
>
> *Man får inte ordentligt anamnes på de som inte pratar så bra svenska, som inte kan svenska.*

Practical Impacts are experienced generally where information exchange is attempted. Misunderstandings and uncertainties over whether information given was understood, subsequently patients' consent may not be established.

> *Ja en annan sak också med prov man måste lämna information till patienten också till varför man vill och då kan det vara lite svårt, när man inte kan med språket och man inte kan lämna all information, som man vill så att patienten får veta och välja. På ett normalt sätt man får tillräckligt med information för att ta beslut.*

Emotional Impacts were experienced by ED staff, as frustration and feelings of inadequacy and ineffectiveness, as not being able to do the best they can for the patient.

> *Man känner att man kanske kan hjälpa mycket bättre om man förstår istället nu kanske man kan bara göra hälften av det man skulle vilja eftersom språk förbristningar är där.*
>
> *Frustrerande tycker jag alltså. Det känns frustrerande för en själv för att man inte förstår, det är frustrerande för patienten som inte kan förstår mig, det är frustration.*

ED staff also experienced *Emotional Impacts* in their patients, such as stress and anxiety that may increase as patients struggle and fail to communicate. Patients also may show signs of irritation or mistrust, which sometimes experienced by staff as culturally related.

> *Som t.ex. jag upplever i alla fall att patienter blir ganska irriterad när dem inte kan förmedla vad dem vill. dem kan känna sig hotade av oss, när dem inte vet vad vi vill göra. De kan sannolikt bli ganska rädda eller uppgivna för att vi inte förstår om de har ont eller svårt att andas eller vad det nu är.*

Solutions

ED staff reported 4 main strategies in communicating over language barriers. According to the participants, often all strategies were attempted, in order to manage the problematics of the situation the best way possible at that moment. The solutions reported were *Body Language*, *Bilingual Staff*, *Relatives and Friends of the Patient* and *Professional Interpreters*.

When using *Body Language*, staff reported to speak Swedish and make sounds in addition to movements and body positions that may represent possible actions, relevant for the patient's condition. Reading the patients' *body language* entails careful judgement of patient's character, as ED staff experienced great variance from patient to patient.

> *Ja man pratar på svenska, sedan försöker man lite så här gester. T.ex. om det är någon som stoppar mig i korridoren och bara pratar och då vet man inte riktigt. Då försöker man liksom visa kanske ont ajajaj alltså typ så här eller sätta sig när som att man ska kissa alltså sådana gester. Men det är svårt om det inte det de vill då är det svårt att förstår vad jag ska göra.*
>
> *Sedan är det lite svårt en del har så stora ivriga rörelser, så har vi ju lite olika kroppsspråk också med rörelsemönster och sådär. En del är väldigt liksom så här men alltså andra är lite mindre. När man ska t.ex. om smärta många, en del är väldigt sådär rörliga och liksom gråter t.ex. medan andra kanske inte är lika uttrycksfulla i sitt kroppsspråk.*

The main implication reported in regards to *Body Language* were risks in misinterpreting and misunderstanding.

> *Man försöker via gestikulera saker ja, men det kan vara halvfarligt också för att man kan misstolka.*

Commonly reported was the use of *Relatives and Friends of the Patient* as ad-hoc interpreters. ED staff reported in this study, that it is the patients themselves who requested to have relatives and friends interpreting, as they came with phones and speakers ready or with company to the ward. Even though patient's privacy might be jeopardised, one staff expressed that most of the time it was desirable for the patient to have a relative or friend involved, and that was why they ask them to translate to begin with. There were mixed attitudes towards the use of *Relatives and*

Friends of the Patient as ad-hoc interpreters amongst ED staff. Some believe this solution worked well and is acceptable. At the same time they were aware it is inappropriate, as they were informed they should not use it.

> *Om de har anhörig telefon eller en kompis det använder dem sig oftast själv av, att dem kommer med sin telefon och har högtalare på och har en kompis där som hjälper. Det beror lite på oftast så är det ju bra men ibland så kan man ju känna att den personen som behöver hjälpen med tolk kanske måste lämna ut sig mer till sin kompis hemma än den hade önskat, men jag upplever det ändå att för det mesta så vill dem ha den där kompisen och känner sig trygga med det, och därför har dem bet den om hjälp.*
>
> *Det känns för min del så är det helt ok. Jag skulle kunna använda, men vi har fått höra att egentligen ska man inte ha anhöriga som ska tolka men för mig är det inget problem. Det är ett redskap som jag kan använda mig utav, alltså anhöriga, det är bra tycker jag.*

Some of the ED staff however clearly described and understood the problematic implications of having used *Relatives and Friends of the Patient* as ad-hoc interpreters. ED staff reported 2 main problematic implications regarding the use of *Relatives and Friends of the Patient* as ad-hoc interpreters. As reported, language abilities of patient's relatives and friends may be limited, particularly in medical vocabulary. The quality of the interpretation was therefore perceived as low and insufficient.

> *Ibland när det är medicinsk språk och så det är anhörig som tolkar, finns vissa ord de inte känner igen och inte kan översätta till språket.*

The other implication of the use of *Relatives and Friends of the Patient* as ad-hoc interpreters, was a strong influence of the third part interpreter on patient-provider communication. ED staff expressed uncertainty whether the answer they received were from the patient or an opinion of the relative or friend interpreter. In this context a nurse described situations in which relative interpreter provided an answer without translating the question and asking the patient first. The nurse expressed concern related to cultural differences in gender norms. The use of children as interpreters was perceived as awkward and unreliable.

> *Det är väldigt frustrerande tycker jag. Dels så är det svårt att få en riktig bild över liksom vems svar är det jag får här fram för allt när det är barn så blir det väldigt konstigt. Det känns frustrerande och inte helt tillfredställande (anhöriga).*
>
> *Ibland ringer de ju anhöriga på telefon som kan prata, man där märker man också att det blir inte riktigt. De förstår inte riktigt vad jag säger eller så märker man att anhöriga som är med eller på telefon, de svarar liksom. Jag ställa en fråga hur ont gör det nu eller någonting sådant där, och då får man direkt svar och det är så nämen du ska fråga du måste fråga henne eller han om utan att de svarar lite typ som de tycker eller tror.*
>
> *Osäkert vem det som svarar, är det mannens reflektion av fruns, för att det är oftast, det är mer ofta tycker jag att kvinnan inte kan pratar att det är manen som pratar för kvinnan. Så det är svårt tycker jag att man inte riktigt få fram kvinnans svar eller mannens åsikter om det här*

Bilingual Staff reported often to find themselves in situations with the non-Swedish speaking patients as they were daily sought after to help colleagues and interpret. Arabic was reported as a common language.

> *Jag är själv två språkigt så jag tolkar ofta. Men det är då finska så att det inte är lika ofta som kanske man behöver som t.ex. arabiska behövs ju mycket oftare men det händer*

att jag tolkar. Jag är undersköterska och jag går på alla olika klinker jobbar så att man hamnar ofta i dem där situationerna.

Participants reported that, actual staff caring for the non-Swedish speaking patient, are obliged to walk around the ward and ask amongst the available colleagues if they speak the patient's language. Sometimes as reported in this study, other colleagues, that are not healthcare professionals, may be used. Most bilingual staff expressed willingness to step in and help with interpreting when needed.

Bara man hittar någon som kan. Oftast när det kommer en sådan patient så går man rund hela akutmottagningen och fråga pratar någon arabiska, och till slut så förhoppningsvis hittar man någon. Ibland har man till och med tagit en städerska som vemsomhelst bara man får den första kontakten.

The use of *Bilingual Staff* was reported helpful and easier, due to a deeper understanding of the nature of the conversation, fellow healthcare providers in the same ED, might possess. Though they were still perceived as a third person interpreters, not being the health care provider assigned for the specific patient, which influenced patient-provider communication.

Personalen ska vara mer medvetna om vad det är för typ av svar man förväntar sig, vad ligger bakom frågeställningen så det kan vara lite lättare på något sätt. Men det är fortfarande en tredje mellan människa som kan påverka också lite informationen.

A *Bilingual Staff* that was often used as an ad-hoc interpreter, reported 2 severe implications that decreased her willingness to step in and translate for colleagues. She reported patients becoming personally involved with her in a way that made her feel uncomfortable. Patients who knew she spoke their language, kept looking after her and searching for her proximity, as sort of attachment security. As patients continued to ask for her help regardless to the care provided and in spite the fact they were not assigned to her as a care provider, she felt exploited. This also created a problem for her as she could not attend to her designated tasks.

För att det blir så jobbigt, jag tyckte att det blir lite personligt och sedan vissa patienter, kan jag deras språk då vänder de sig alltid till mig. Och då kunde jag inte göra klart mina arbetsuppgifter med andra patienter för de drog i mig. Du! kan du hjälpa mig, kan du, som kände en sorts trygghet att de har någon som kan språket. Och då utnyttja de det. Så jag kände mig utnyttjad.

Another implication that she described as problematic in being an ad-hoc interpreter while working at the ED, was that she have got in to conflicts with colleagues, who approached her despite the availability of more appropriate professional interpreting services. As she often felt the responsibility of translation was beyond her medical vocabulary in the required language.

Jag kan inte dem medicinska termerna så bra som till exempel på det språket, då blir det, ibland kan jag hamnar i situationer det blir svårt för mig att tolka…

Folk kan inte svenska och behöver tolk men det förkommer dagligen att kollegor gå rund och frågar, vad kan du för språk? vad kan du för språk? Jag vet att typ som t.ex. på det språket finns att få express tolk, då säger jag du kan ringa express tolk, ah men det här går fort, nej det spelar ingen roll jag vill inte gå in och tolka, då får du ringa express tolken. Så det är lite problem.

Professional Interpreters (phone or face-to-face) were unanimously reported by ED staff in this study, the best solution possible, particularly face-to-face. However, as reported, the need for interpreting services exceeded the available resources, which led to mainly phone interpreting

services being used. Nurses often considered the urgency of the situation, while waiting for *Professional Interpreters* was prioritized for interaction with physicians. Availability was questioned by participants, both in terms of time and language.

> *Finns det inte det, får fundera på hur pass brådskande är det att få tag i någon som kan kommunicera bättre med patienten, behöver jag ha en telefontolk direkt för mitt samtal med patienten eller kan det vänta tills läkaren träffar patienten och tar telefontolk då.*
>
> *Den bästa lösningen är ju alltid ha en professionell tolk för då vet man att det blir rätt och då är det på telefon. Helst på plats men idag är det ju på telefon du får ju inte tolkar på plats så fort, för tolkbehovet så stort så att det blir på telefon.*
>
> *Ah vissa språk är väldigt svårt att få tag på nattider.*

The main problematic implication reported, in regards to *Professional Interpreters*, was that it took longer than other solutions, caused unnecessary delays, and furthermore was unclear as to whether interpreters would actually become available. Also participants experienced, technical issues and interpreter not being able to see the patient, had compromised quality of interpreting, when service was provided on the phone.

> *Så får man vänta ytterligare det blir lite tids vad heter det fördröjning för att man måste ringa till tolk och kan inte tolken så får man ringa om en timme.*
>
> *Det allra bästa att ha någon hos sig som kan tala språket för telefontolk det blir också ett hinder. Alltså att inte se den man talar med kan vara svårt det också. Det blir liksom ändå en som ställer frågorna till en patient via en telefon och då är det väldigt beroende av den tekniska utrustningen. Oftast så tolken då har en vanlig telefon kanske inte hör allting exakt, man kanske inte fattar nyanser i fråga. Man ska säga samtidigt när patienter svarar så kanske svarar med att visa någonstans som personen på andra sidan inte ser, så att det är inte optimalt då du får inget svar på det som du vill veta.*

The use of the application CTT when meeting non-Swedish speaking patients

ED staff described the experience of using CTT in terms of *practical implications* and *psychosocial implications*. Participants reported how the use of CTT influenced their interactions with non-Swedish speaking patients, as well as how such situations may influenced the use of the app, and the significance such implications may entail for their work at the ED. While *Practical Implications* were described as technical, physical and situational conditions, *Psychosocial Implications* were expressed in terms of interpersonal and organizational conditions. However, the analysis emphasize psychosocial elements of both themes respectively, as these are the focus of the study.

Practical Implications

The practical impacts of having CTT at the ED were described by staff as the *use* and its immediate *effects*, such as were reported during anamnesis and while giving typical basic information. CTT was reported useful in various situations. The participants who reported more frequent use also tended to have more favorable opinions. According to ED staff, though CTT did not help much every time, it was experienced to be helpful sometimes. Time constraint at particularly acute situations reported as an obstacle for using CTT.

> *Dem gångerna jag behövt så har jag tagit upp i paden och använt den så att ibland så har vi patienter som absolut inte förstår någonting och då har jag behövt använda den. Och det har funkat bra då. ... 10 gånger kanske. Alla möjliga situationer, dels när vi ska*

ta blodprover, om vi ska sköta någon, omvårdnad, fråga hur patienter mår, alltså från första steget att patienterna kommer till att de lämnar oss här på akuten, så har jag kunnat använda appen.

During anamnesis some participants experienced that the application helped understanding patients' symptoms. However, some experienced that CTT did not help or could not judge from their experiences. No negative implications were reported in this regard. One nurse told how with the help of the app, basic anamnesis at reception, was sufficient to avoid further examination by Triage team.

Så då tog jag fram min telefon och appen och sedan så kunde vi då, kunde jag fråga dem mest liksom vad det var hon sökte för helt enkelt kort fattat. som till exempel jag frågade om hon har kräkts, var har hon ont, lite sådana korta bara symptom beskrivande, sådana frågor så det var bara det för det mesta. ... det hjälpte att jag fick fram vad det var hon sökte för, att jag kunde utesluta att hon var alvarligt sjuk. Jag kunde ändå förstå att det är lugnt med henne. ... Hade det vart så att jag inte fått någonting ur henne och kan inte alls avgöra vad det är hon vill då hade jag skickat henne vidare in till vårt Triage team som ska göra en lite mer utförlig bedömning av henne.

During blood tests, several nurses reported improved time utilization, as patient-provider communication with the help of CTT, facilitated cooperation, and strengthened meaning of gestures and use of body language. In this context nurses had to inform patients, about what they are going to do. Using CTT was described by participants, as a better way to explain and time effective, particularly since other time consuming alternatives were not even attempted.

På det sättet att om patienten förstår vad jag har tänkt att göra så samarbetar patienten och kan hjälpa till att ta av sin tröja och liksom förbereda sig och jag behöver inte på samma sätt kanske båda leta efter en kollega som kan tolka, ringa efter anhörig som kan tolka eller att jag ska försöka förklara på ett sätt som jag inte riktigt når fram.

Med appen och teckenspråk så gör man sig jättebra förstådd med patienten.

Alternative Solutions such as bilingual staff or relatives ad-hoc interpreters or professional interpreters, as reported by participants, had been barely influenced by the use of CTT. Often ED staff reported, they had sought other solutions such as relatives or bilingual staff, before even thinking about the mobile application, due to flexibility in conversing that such solutions may offer when sufficient.

Ja det är ju att de kommer hitt och söker till exempel för yrsel, att de har sin son med sig som är uppvuxen i Sverige som pratar rent svenska och så tolkar vad mamma säger och han stannar under hela vårdtiden.

Ja om de är bra på att tolka så det märker man ju. Man kan fråga mer följdfrågor och det blir mer nyanserad. Här är det ju enstaka meningar och ja och nej frågor mycket.

Bilingual staff were reported more available with new staff and new languages. This solution reported favorable, for the quality and flexibility in interpreting. Bilingual colleagues were found to be close by or already part of the team or even exchanged tasks with the healthcare provider assigned to the non-Swedish speaking patient, which felt like a natural way to deal with the situation.

Man får ju mer. Fråga jag en kollega så kan jag fråga mer följdfrågor, och jag kan få det mer nyanserat om jag får det tolkat genom en kollega.

Alltså de gångerna jag har hamnat i den situationen så har vi hittat den personalen väldigt fort att den har funnits i gruppen i närheten.

När jag har fått några gånger så har ju den personalen att vi har bytt till exempel arbetsuppgifter så att hon har fortsatt att liksom ta proverna på den patienten som kan fortsätta och ta, jag kanske skulle sticka den patienten men då tog hon över och tog dem proverna så att de kunde fortsätta prata... ... det blev liksom helt naturligt.

Professional interpreters were considered by participants, to be for deeper, complex conversations often with a physician or at discharge, such that are not seen appropriate or suggested for CTT use. A nurse described a situation in which, CTT helped to understand that the patient's condition, did not suit emergency care, however, registration at the ED was necessary, in order to book an interpreter that could explain just that to the patient, which the nurse could not do with the help of CTT.

Ja det är ju mer till läkarsamtalen vi tar de, att när läkaren ska informera eller när de är färdigbehandlade då tar man oftast en professionell tolk.

Där kände jag att den här kvinnan hon skulle nog inte in till akuten, hon var inte en sådan patient utan hon skulle nog förmodligen bara gå hem och avvakta kanske kontakta sin vårdcentral och det kunde jag liksom inte få fram på ett vettigt sätt så det blev det ändå att jag fick skriva in henne för att man skulle få en tolk för att kunna förklara alla dem här sakerna för henne för jag kunde inte och det blir lite frustrerande att jag kände att jag inte kan förklara mig för henne så där. Så det hjälpte inte så pass mycket.

Main technical issues reported by ED staff were related to the mobile device used. Participants who had I-pads generally used CTT more and were overall more satisfied with the app. In the quote below, a nurse told how the I-pad sometimes failed to work properly, and consequently got stowed away and forgotten for a while.

Ja så ibland använder jag den jätteflitigt (I-pad) och tänker den finns här och sedan nästa dag så glömmer jag bort att jag har den för då börjar den här strula då sluta man använda den och då börjar man gå tillbaks till datorn, sedan när den har funkat då kommer man ihåg den och då använder man den. Så länge den funkar så använder man den och då använder man den mer och mer avancerat. Så att det är ju förutsättningen att den funkar. Det är när den börjar strula så man stoppar när den i fickan, och sedan glömmer man bort den att ha just det jag måste testa om den funkar nu.

Participants who had to use their private phones generally felt it was unnatural and awkward having to use their own devices. Hygiene was mentioned as an issue as staff wished to protect their devices to some extent, for example considering they might use it at home with their children afterwards. Many mentioned the need to use private devices as main reason for not using CTT, and wondered whether being part of the I-pad project would have helped them to use it more. One nurse for example reported to never carry a private phone during working hours.

Som sagt jag har inte använt den så mycket eftersom den är i privata telefonen det känns så fel att fram det... ... För att jag inte med I-pad projektet precis.

Psychosocial Implications

The quality of *communication* when using CTT was reported by ED staff in terms of provider's experiences and patient's understanding. For example some participants reported positive regards from behalf of the patients, such as a happy grin in response to an explanation in patient's own language. Providers expressed that when communicating with CTT, they had felt reassured that patients understand what they said, by patients' reactions. Participants had expectations that patients would be thankful for the effort put into communicating with them when using the app, whether it is helpful or not. In the first quote bellow, a nurse reported no such gratitude was detected on the patients when using CTT.

> *Jag kan tänka mig om man kommer och inte pratar ett språk och personalen faktiskt försöker ta fram en app för att kunna kommunicera så skulle jag känna mig, jag tror att man skulle vara ganska tacksam som patient att det ändå, att man ändå försöker liksom upplevelsen. ... Jag kan inte påstå att jag fått någon upplevelse av patienterna att jag känner så här att de var tacksamma.*
>
> *Det var ett glatt uttryck som hon fick det förklarat på spanska.*
>
> *Jag tycker att det är kul att man kan göra sig förstådd hela tiden... Om jag förklarar med appen så säger de oftast ok. ... Skulle jag bara göra teckenspråk så kan det vara så att de inte förstår alls vad jag menar.*

Limitations reported by ED staff often in regards to patients' needs to express freely, for example as patients reacted to CTT use by starting to speak in their own language. This considered as a limitation, because the healthcare provider using the application, was obviously unable to understand what they are saying, and it was limited in the way, CTT could be used to interpret what the patients were saying. Patients may be given or shown the I-pad, where words and phrases are presented in their language, so they can point them out. However, participants expressed the feeling that nuances are often lost. ED staff found scrolling to be challenging as well, for example one nurse felt that by looking at the screen so long, contact with the patient was lost.

> *Hon pratar massa på arabiska och så peka hon på knäet och så peka hon på foten och så peka hon på bröstet och så som jag sedan förstod det så var det ju att hon hade ont i hela kroppen. och så allmän sjukdom känsla, men det är så svårt att få fram dem nyanserna.*
>
> *Jag har använt den några gånger och det funkar så där tycker jag. Det är ett bra verktyg för att få så här snabb information och lite kortfattad men jag tycker att det blir svårt att föra en dialog utan att det blir mest liksom fråga svar, ja nej frågor alltså det är svårt att få in nyanser tycker jag.*
>
> *Ja alltså man ska scrolla ok var ska jag leta för term liksom så här på allmänna termer eller på sjuksköterskans eller och sedan så här så det tyckte jag var lite jobbigt faktiskt att man skulle scrolla, då blir det ju mer att man tittar ner på skärmen än att titta mot den man pratar med.*

Implementation was lifted by the participants and perceived as challenging. Often not using CTT was reported to not feeling natural, as a habit of doing so was not yet developed.

> *Det är svårt när det är något nytt att få in det i ett arbetssätt som man vann att göra på ett annat sätt, allting går så mycket på rutin, då är det svårt att implementera någonting nytt.*

Ways to *Implementation* suggested by the staff often included managerial involvement and reminders for example by discussing the use of the mobile application in routine meetings. Most participants did not see others using CTT nor they discussed it much with their colleagues.

> *Jag tänker så här om man kommer till jobbet att varje dag, om det skulle bli så här som att vi skulle använda oss av, skulle det var ett verktyg på akuten, som även kommer från ledningens roll, att det här vill vi att ni använder er av, använda det här för att mer korrekt information och för att kunna förmedla information, och att de då också liksom att det finns på I-pad att man hela tiden pratar om att använda det här verktyget.*

Unanimously participants' *expectations* of the application were positive, they had faith in the application, which they felt needed to be strengthen through successful experiences. They all expressed intentions to continue using CTT in the future, and hope to use it more and more. All felt that they used it less than what they could have, or too little to evaluate during the study period. Many times using CTT, just did not cross their mind at all.

> *Jag tänker nu när jag pratar med dig så kommer jag i alla fall det, tänka på det mera ett tag, och sedan beroende på hur upplevelserna är så finns det möjlighet att använda den mer.*
>
> *Jag tror att det här är jättebra för framtiden och verkligen lovande.*
>
> *Jag kommer absolut att försätta använda den.*
>
> *Jag kanske hade känt mig tryggare att använda appen om jag hade gjort det mer, men eftersom jag har ganska lite erfarenhet av det.*
>
> *Nej jag kan inte säga, jag vet inte, jag känner nog att jag inte har använt den så pass mycket för att kunna uttrycka att den här förbättrat eller försämrat interaktionen mellan oss.*

Discussion

ED staff in this study reported language barriers to be a major problem, for which solutions may pose farther issues and challenges, when dealing with non-Swedish speaking patients. The problem was expressed by participants as frequent and difficult. They reported both practical impacts such as limited anamnesis and time delays, and emotional impacts such as frustration on their behalf and stress and anxiety as they felt, could be detected on patients. Solutions such as professional interpreting services, mostly by phone, bilingual staff, relatives of patients and body language were discussed by ED staff in this study. As reported by the participants, body language may lead to misunderstandings and ad-hoc interpreters may compromise patient's integrity, while bilingual staff stepping in to help with interpreting, were perceived to be the favourable solution, considering staff deeper understanding of the situation. Professional interpreting services were perceived by the participants, mostly nurses, as a resource better saved for important conversations with physicians, and though face-to-face was considered as favourable, phone services were experienced as more realistically available. CTT as an alternative solution was perceived by ED staff to be promising and positively welcome, they expressed wishes to use it more, though implementation felt lacking and necessary, particularly in terms of management involvement. Participants in this study reported using the app in various situations, and experienced it to be helpful at times, and limited at times. Participants felt uncomfortable using their own private mobile devices at the ED.

Literature on language barriers in healthcare context suggests that organizational commitment is a prerequisite in facilitating equity in healthcare systems, through improvement of communication quality with diverse populations. Creating and making available resources, shown to be insufficient without appropriate training (Granhagen Jungner et al., 2016; Hudelson, et al., 2014; Ozolins & Hjelm, 2003; Pun et al., 2017). According to the Communication Accommodation theory, strategies for interpersonal communication may be influenced by personal as well as intergroup goals and perceptions, such that might be related to patient's emotional needs and communicative competence or capacity, as perceived by healthcare providers, but also costs, managerial involvement and availability of resources (Giles, 2008; Meuter et al., 2015; Watson, & Gallois, 1998). This study supports the notion that healthcare professionals are to some extent oblivion to the implications different strategies of dealing with language barriers may entail, which might influence their intergroup goals and perceptions when choosing for one strategy over another. For example costs of using bilingual staff as interpreters and the importance of quality interpreting (Bischoff & Hudelson, 2010; Fatahi et al. 2010; Krupic, et al., 2016). Moreover, quality of professional interpreting services may influence healthcare professionals' attitudes towards ad-hoc solutions when compared with their personal experiences, as healthcare interpreters in Sweden are seldom professionally trained (Bischoff & Hudelson, 2010; Granhagen Jungner et al., 2018). This is worrisome as training of professional healthcare interpreters, rather than years of experience, shown significance to errors of potential clinical consequences (Flores et al., 2012). Professional interpreting services present several practical limitations, for example to continuity during visits, short routine checks, way-finding etc. (Crossman et al., 2010; van Rosse et al., 2016). Solutions to tackle language barriers are necessary for situations in which professional or even informal interpreters are not available, as expressed by the participants of the current study and supported in prior research (van Rosse et al., 2016). The need for complementary translating solutions in a growing multi-cultural global reality, is by now a matter of fact, with many immigrants and refugees entering Sweden (Anderson et al., 2003; Gany et al., 2007; Hultsjö & Hjelm, 2005; Müller, et al., 2016; Nailon, 2006).

In the current study, bilingual care providers were often perceived as the preferable solution. In prior research, staff at a Hong Kong ED, reported translating practices to significantly modify information given to patients, even identifying related critical incidents.

However, the majority of staff did not connect interpretation challenges to such incidents (Pun et al., 2017). ED staff reported implications of multilingual communication, mostly regarding information about medication given to patients, as well as medical documentation. Triage was reported as a challenging momentum for multilingual communication, also reported by ED staff in the current study (Pun et al., 2017). As expressed by participants in this study, ED staff may become costume to insufficient communication strategies in a multilingual environment, and in spite the fact that healthcare professionals are multilingual and interpret on their own (Meuter et al., 2015; Pun et al., 2017). That is, even in a trilingual ED where all care providers may interpret all languages commonly used, authors suggest developing technological solutions to insure quality of interpreting but also to relief healthcare professionals from the challenges of having to navigate between several languages, so to focus on their tasks as care givers (Pun et al., 2017).

Outcomes for future evaluation

ED staff in this study reported that CTT improved patient's cooperation, an outcome identified as important by professional interpreters in Sweden, related to establishing trust when facilitating communication over language barriers (Granhagen Jungner, Tiselius, Blomgren, Lützén, & Pergert, 2018). CTT shown in this study to provide reassurance to healthcare providers, that patients had understand what they said. This is an important outcome, as difficulty to verify understanding when giving information, has been reported by ED staff in this study, supported by prior research in Sweden and may pose ethical consequences, particularly in terms of consent (Ozolins & Hjelm, 2003). A third important outcome to emerge from the results is the extent to which care providers may be able to extract appropriate anamnesis and understand why the patients are there to begin with. Research on language barriers in healthcare context has emphasized the need for new systematic methods, particularly at a micro-level of analysis, and farther research to develop training of healthcare professionals in communication over language barriers (Meuter et al., 2015). Therefore focusing on few specific outcomes of importance is recommended for future research.

Ethical challenges and Limitations

The ED is a unique high-stress working environment, in which healthcare professionals may struggle with many barriers, language and time constraint being two of the most documented (Basu, Yap, & Mason, 2016; Nailon, 2006; Pun, Chan, Murray, Slade, & Matthiessen, 2017). Managerial relations and professional status may limit the access to and understanding of the complexity of the ED context, for an outsider researcher (Wears, Woloshynowych, Brown, & Vincent, 2010; Yuwanich, Sandmark, & Akhavan, 2016). CTT is an app created to help healthcare professionals, however evaluation of the app involves questioning healthcare providers' current strategies when dealing with non-Swedish speaking patients. It is essential for the improvement of healthcare systems to understand healthcare professionals in their natural settings with empathy rather than judgement and critic. It may be pointed out that expecting and demanding ED staff to use an app under development, for the purpose of evaluation, is a major undertaking on their behalf. At the same time this is also why logistically, evaluating CTT is challenging, considering the low frequent use of the app during the study time period. Considering the relatively short time period of the study and according to participants' reports, the lack of experiences with CTT by the healthcare professionals in this study, limits conclusions that may be drawn from the results, to evaluate the implementation of the app at the ED. Participants unanimously admitted to have used it too little, and also pointed out that it was not implemented. This result suggest that implementation strategies may have to be considered before any further evaluation can take place. Results suggest that a single follow up of 5 months may not be sufficient to evaluate implementation of CTT, particularly when

implementation is lacking and technical issues such as mobile devices and log-in information were not appropriately arranged.

As the group of participants consists of a convenient sample of volunteers, results are not representative. Healthcare providers at the ED that participated had originally positive attitudes towards CTT, which was the main reason for their participation. This may have created a bias in the results. A number of participants in the original contact list were never interviewed and 3 failed to follow up, which may also present a bias in the results. For example, 2 of the participants who failed to follow up were bilingual healthcare providers that reported often to interpret at the ED, also one of them was the only doctor to have been interviewed for this study. These issues might have influenced these participants' interest in the app. Overall the small sample and the single context, limit the extent to which results may be generalized to other settings, as they present the current state at the specific Stockholm ED. Moreover, due to the qualitative approach used in this study, results were influenced by the author's personal involvement in data collection procedure and analysis (Creswell, 2013). This study is a pilot evaluation of CTT, intended to be used in development of future evaluations. There are no actual control conditions nor appropriate baseline data, such that can underline the effects of using the app, and large part of the results is hypothetical, representing participants' opinions and thoughts only.

Conclusion

The experiences of language barriers as reported by ED staff in this study, are overall supported by prior research, suggesting that the phenomenon is universal and similar across various healthcare contexts, including this specific Stockholm ED. However, the retrospective nature of the current study means that participants' memories and attitudes may bias greatly the results, regarding the evaluation of CTT. Therefore, future quantitative evaluation of CTT, recommended to be incorporated into the app, so that users may evaluate each encounter directly after each use, with focus on a small number of key outcomes such as found in this study, to make it as convenient as possible, for healthcare professionals to participate. Implementation in form of training may be considered. As CTT was developed to be intuitive and user-friendly, training may focus on communication over language barriers with the help of CTT, alongside other solutions, in order to raise awareness by emphasizing the implications of various available solutions found in empirical research.

References

Anderson, L. M., Scrimbshaw, S., Fullilove, M., Fielding, J. E., & Normand J., (2003). Culturally competent healthcare systems: a systematic review. *Am J Prev Med.;24*(3S), 68–79.

Balakrishnan, V., Roper J., Cossey, K., Roman, C., & Jeanmonod, R., (2016). Misidentification of English Language Proficiency in Triage: Impact on Satisfaction and Door-to-Room Time. *J Immigrant Minority Health, 18,* 369–373. doi:10.1007/s10903-015-0174-4

Basu, S., Yap, C., & Mason, S. (2016). Examining the sources of occupational stress in an emergency department. *Occupational Medicine, 66*(9), 737-742. doi: 10.1093/occmed/kqw155

Bernstein, J., Bernstein, E., Dave, A., Hardt, E., James, T., Linden, J., Safi, C. (2002). Trained medical interpreters in the emergency department: Effects on services, subsequent charges, and follow-up. *Journal of Immigrant Health, 4*(4), 171–176. doi: 10.1023/A:1020125425820

Bischoff, A. & Hudelson, P. (2010). Communicating with foreign language-speaking patients: is access to professional interpreters enough? J. Travel Med. 17(1), 15–20.

Braun, V. & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. doi:10.1191/1478088706qp063oa

Brogan, K., Adriaenssens, J., & Kelly, H., (2015). Vocal-Medical: On-Line Language Learning and Cultural Preparation for Emergency Services. *ELIA, 15*, 159–170. doi:10.12795/elia.2015.i15.08.

Carnevele FA, Vissandjee B, Nyland A & Vinet-Bonin A (2009) Ethical considerations in cross- linguistic nursing. *Nursing Ethics, 16,* 813–826. doi:10.1177/0969733009343622

Carrasquillo, O., Orav, E. J., Brennan, T. A., & Burstin, H. R., (1999). Impact of language barriers on patient satisfaction in an emergency department. *J Gen Intern Med.*, *14*(2), 82–7.

Credé, S. H., Such, E., & Mason, S. (2018). International migrants' use of emergency departments in Europe compared with non-migrants' use: A systematic review. *European Journal of Public Health, 28*(1), 61–73. doi:10.1093/eurpub/ckx057

Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage.

Crossman, K. L., Wiener, E., Roosevelt, G., Bajaj, L., & Hampers, L. C. (2010). Interpreters: Telephonic, in-person interpretation and bilingual providers. *Pediatrics, 125*(3), e631-e638. doi:10.1542/peds.2009-0769

Flores, G., Abreu, M., Barone, C. P., Bachur, R., & Lin, H. (2012). Errors of medical interpretation and their potential clinical consequences: a comparison of professional versus ad hoc versus no interpreters. *Annals of Emergency Medicine, 60(5),* 545–553. doi:10.1016/j.annemergmed.2012.01.025

Gany, F., Leng, J., Shapiro, E., Abramson, D., Motola, I., Shield, D. C., & Changrani, J. (2007). Patient satisfaction with different interpreting methods: A randomized controlled trial. *Journal of General Internal Medicine, 22,* 312–318. doi:10.1007/s11606-007-0360-8

Giles, H. (2008). Communication accommodation theory. In L. A. Baxter, & D. O. Braithewaite (Eds.), *Engaging theories in interpersonal communication: Multiple perspectives;*

engaging theories in interpersonal communication: Multiple perspectives (pp. 161-173, Chapter xi, 423 Pages) Sage Publications, Inc, Thousand Oaks, CA. doi:10.4135/9781483329529.n12

Granhagen Jungner, J., Tiselius, E., Blomgren, K., Lützén, K., & Pergert, P. (2018). The interpreter's voice: Carrying the bilingual conversation in interpreter-mediated consultations in pediatric oncology care. *Patient Education and Counseling.* doi:10.1016/j.pec.2018.10.029

Granhagen Jungner, J., Tiselius, E., Lützén, K., Blomgren, K., & Pergert, P. (2016). Creating a Meeting Point of Understanding: Interpreters' Experiences in Swedish Childhood Cancer Care. *Journal of Pediatric Oncology Nursing*, *33*(2), 137–145. doi:10.1177/1043454215600148

Granhagen, J. J., Tiselius E., Wenemark, M., Blomgren, K., Lützén, K., & Pergert, P. (2018). Development and evaluation of the Communication over Language Barriers questionnaire (CoLB-q) in pediatric healthcare. *Patient Education and Counseling, 101*(9), 1661–1668. doi: 10.1016/j.pec.2018.04.007

Guess, M., Tanabe, K., Nelson, A., Nguyen, S., Hauck, F., & Scharf, R. (2018). Emergency Department and Primary Care Use by Refugees Compared to Non-refugee Controls. *Journal of Immigrant and Minority Health, 1–8*. doi:10.1007/s10903-018-0795-5

Hudelson, P., Dao, M. D., Perneger, T., & Durieux-Paillard, S. (2014). A ''migrant friendly hospital'' initiative in Geneva, Switzerland: Evaluation of the effects on staff knowledge and practices. *PLoS ONE, 9*(9), 7.

Hultsjö, S., & Hjelm, K. (2005). Immigrants in emergency care: Swedish health care staff's experiences. *International Nursing Review*, *52*(4), 276–285. doi:10.1111/j.1466-7657.2005.00418.x

Jacobs, E. A., Chen, A. H. M., Karliner, L. S., Agger-Gupta, N., Mutha, S. (2006). The need for more research on language barriers in healtcare: A proposed research agenda. *Milbank Q, 84*(1), 111–133.

Krupic, F., Hellström, M., Biscevic, M., Sadic, S., & Fatahi, N. (2016). Difficulties in using interpreters in clinical encounters as experienced by immigrants living in sweden. *Journal of Clinical Nursing, 25*(11-12), 1721–1728. doi:10.1111/jocn.13226

Locatis C, Williamson D, Gould-Kabler C, Zone-Smith L, Detzler I, et al. (2010) Comparing in-person, video, and telephonic medical interpretation.J Gen Intern Med 25: 345–350.

Masland, M. C., Lou, C., & Snowden, L. (2010). Use of communication technologies to cost-effectively increase the availability of interpretation services in healthcare settings. *Telemedicine and e-Health, 16*(6), 739–745. doi:10.1089/tmj.2009.0186

McGrath, C., Palmgren, P. J., & Liljedahl, M. (2018). Twelve tips for conducting qualitative research interviews. *Medical Teacher*. doi:10.1080/0142159X.2018.1497149

Meuter, R. F. I., Gallois, C., Segalowitz, N. S., Ryder, A. G., & Hocking, J. (2015). Overcoming language barriers in healthcare: A protocol for investigating safe and effective communication when patients or clinicians use a second language. *BMC Health Services Research, 15*, 371–376. doi:10.1186/s12913-015-1024-8

Müller, M., Klingberg, K., Srivastava, D., & Exadaktylos, A. K., (2016). Consultations by Asylum Seekers: Recent Trends in the Emergency Department of a Swiss University Hospital. *PLoS ONE, 11*(5), e0155423. doi:10.1371/journal.pone.0155423

Nailon, R. E. (2006). Nurses' concerns and practices with using interpreters in the care of latino patients in the emergency department. *Journal of Transcultural Nursing, 17*(2), 119–128. doi:10.1177/1043659605285414

Ozolins, L. & Hjelm, K. (2003) Nurses' experiences of problematic situations with migrants in emergency care in Sweden. *Clinical Effectiveness in Nursing*, **7**(2), 84–93. doi:10.1016/S1361-9004(03)00075-X

Pun, J. K. H., Chan, E. A., Murray, K. A., Slade, D., & Matthiessen, C., (2017). Complexities of emergency communication: clinicians' perceptions of communication challenges in a trilingual emergency department. *Journal of Clinical Nursing, 26,* 3396–3407. doi:10.1111/jocn.13699

Sandhu S, Bjerre NV, Dauvrin M, Dias S, Gaddini A, et al. (2012) Experiences with treating immigrants: a qualitative study in mental health services across 16 European countries. Soc Psychiatry Psychiatr Epidemiol 48: 105–116.

Shaw, S. J., Huebner, C., Armin, J., Orzech, K., & Vivian, J. (2009). The role of culture in health literacy and chronic disease screening and management. *Journal of Immigrant and Minority Health, 11*(6), 460–467. doi:10.1007/s10903-008-9135-5

Steinberg, E. M., Valenzuela-Araujo, D., Zickafoose, J. S., Kieffer, E., & DeCamp, L. R., (2016). The "Battle" of Managing Language Barriers in Health Care. *Clinical Pediatrics*, *55*(14), 1318–1327. doi:10.1177/0009922816629760

Tucker, C. M., Herman, K. C., Pedersen, T. R., Higley, B., Montrichard, M., & Ivery, P., (2003). Cultural sensitivity in physician-patient relationships: Perspectives of an ethnically diverse sample of low-income patients. *Med Care; 41*(7), 859–70.

van Eechoud, I., Grypdonck, M., Leman, J., Van, D. N., Deveugele, M., & Verhaeghe, S. (2017). Balancing truth-telling: Relatives acting as translators for older adult cancer patients of Turkish or northwest African origin in Belgium. *European Journal of Cancer Care, 26*(5), 1–12.

van d. Muijsenbergh, M., van Weel-Baumgarten, E., Burns, N., O'Donnell, C., Mair, F., Spiegel, W., & MacFarlane, A. (2014). Communication in cross-cultural consultations in primary care in Europe: The case for improvement. The rationale for the RESTORE FP 7 project. *Primary Health Care Research and Development, 15*(2), 122–133. doi:10.1017/S1463423613000157

van Rosse, F., de Bruijne, M., Suurmond, J., Essink-Bot, M., & Wagner, C. (2016). Language barriers and patient safety risks in hospital care. A mixed methods study. *International Journal of Nursing Studies, 54*, 45-53. doi:10.1016/j.ijnurstu.2015.03.012

Watson, B., & Gallois, C. (1998). Nurturing communication by health professionals toward patients: A communication accommodation theory approach. *Health Communication, 10*(4), 343-355. doi:10.1207/s15327027hc1004_3

Wears, R. L., Woloshynowych, M., Brown, R., & Vincent, C. A. (2010). Reflective analysis of safety research in the hospital accident & emergency departments. *Applied Ergonomics, 41*(5), 695-700. doi:10.1016/j.apergo.2009.12.006

Yuwanich, N., Sandmark, H., & Akhavan, S. (2016). Emergency department nurses' experiences of occupational stress: A qualitative study from a public hospital in Bangkok,Thailand. *Work: Journal of Prevention, Assessment & Rehabilitation, 53*(4), 885-897. doi:10.3233/WOR-152181

Appendix

INTERVIEW GUIDE

Care to Translate Study

The aim of this study is to identify possible psycho-social effects and eventually relevant outcomes for evaluating the implementation, of CTT application in routine health care services. This will be done by exploring the subjective experiences of emergency department staff before and after having used the application in their daily routine. Additionally, the study will explore emergency staff experiences with the application, as a communication tool. The research questions are as follow:

- **How do emergency department staff experience language barriers when meeting non-Swedish speaking patients?**

Inledning: Välkommen till intervjun. Jag heter Sivan och är mastersstudent vid Stockholm universitetet, Psykologiska institutionen. Den här intervjun är en del av ett utvärdering uppdrag för CTT och min masteruppsats. Den kommer bli ungefär en kvart, och jag håller tiden. Det kommer att spelas in. Deltagandet är konfidentiellt och frivilligt så att du får avbryta när du vill. Materialet kommer att användas oidentifierat.

Tema: Jag har förstått att ni i akutmottagningen får bemöta icke-svensktalande patienter ibland, som kanske inte kan riktigt bra engelska heller. Som du vet kommer ni få tillgång till CTT på paddorna som ni har i mottagningen och tanken är ju att man skulle kunna utvärdera det eventuellt. Den här intervjun därmed handlar om dina upplevelser med icke-svenska talande patienter, och hur du upplever kommunikationsproblem relaterad till språk. Vi börjar lite om vem du är och dina roll och arbete i mottagningen. Sedan kommer vi gå in på hur du upplever interaktionen med icke-svenska talande patienter och hur du hantera sådana situationer samt som hur tänker du kring kommunikationsproblem relaterad till språk. Slutligen kommer jag fråga dig lite om dina erfarenheter med alternativa översättning lösningar som t.ex. CTT, eller vad tycker du om idén och vad har du för förväntningar.

1. **Berätta lite om dig och din roll på mottagningen**
    a. Hur länge har du jobbat på akuten?
    b. Vilka tider brukar du jobba?
    c. Vad har du för utbildning? Erfarenheter? Yrke?
    d. Hur trivs du på din arbetsplats?

2. **Hur upplever du interaktionen med icke-svenska talande patienter?**
    a. Hur sådana situationer ser ut? Har du konkreta exempel?
    b. Hur hanterar du det?
    c. Hur ofta upplever du att dessa situationer leder till kommunikationsproblem? som har med språk att göra?
    d. Hur ser det ut? Konkreta exempel?
    e. Vad gör du då?
    f. Hur känns det?

3. **Har du några idéer eller önskningar om hur dessa problematiska situationer skulle kunna lösas?**
        a. Vilka erfarenheter har du med alternativa översättningsverktyg eller andra hjälpmedel?
        b. Hur fungerar dem?
        c. Vad kan förbättras?

4. **Vad tycker du om idén med CTT?**
        a. Har du hunnit titta på appen?
        b. Har du redan använt den?
        c. Vad har du för förväntningar?

5. **Finns det något du vill lägga till?**

INTERVIEW GUIDE

Care to Translate Study

The aim of this study is to identify possible psycho-social effects and eventually relevant outcomes for evaluating the implementation, of CTT application in routine health care services, by exploring the subjective experiences of emergency department staff before and after having used the application in their daily routine, as well as their experience of the application in particular, as a communication tool.

- **How do emergency department staff experience the use of the application CTT when dealing with non-Swedish speaking patients?**

Inledning: Välkommen till intervjun. Den här intervjun är andra delen av utvärdering uppdraget för CTT och min masteruppsats. Den kommer bli ungefär 20 minuter, och jag håller tiden. Det kommer att spelas in. Deltagandet är konfidentiellt och frivilligt så att du får avbryta när du vill. Materialet kommer att användas oidentifierat.

Tema: Ni har fått använda CTT på paddorna/ egna telefoner i akutmottagningen och tanken är nu att utvärdera appen som en rutinöversätningsverktyg. Den här intervjun handlar om dina upplevelser med CTT vid interaktion med icke-svenska talande patienter, och hur du upplevde översätningsverktyget som en lösning på kommunikationsproblem relaterad till språk. Vi börjar med hur du har använt CTT under den senaste tiden och hur det har fungerat för dig. Vi kommer prata lite om hur du tycker att ha CTT som ett verktyg på mottagningen, har påverkat dig och din interaktion med icke-svenska talande patienter.

6. **Hur har du använt CTT?**
    a. Hur mycket har du använt appen?
    b. I vilka situationer?
    c. Kan du beskriva en situation när du använde den?
    d. Hur reagerade patienten etc?
    e. Har du fler exempel?
    f. Hur ofta använder du appen tror du?
    g. Har du märkt situationer då man skulle kunna använda appen och få nytta av det men ändå inte gjorde det? Hur sådana situationer ser ut? Exempel
    h. Hur ofta hände det?

i. Vad gör man då istället?
j. Varför välja bort du appen
k. Finns det situationer där det inte går att använda appen även om du kanske skulle vilja eller har tänkt på det? Varför inte?

7. Vad tycker du om att ha CTT som rutin översättningsverktyg?

a. Hur tycker du påverkar det interaktionen med icke-svensktalande patienter? *(Både när man faktiskt använder appen och att man bara vet att man har appen att 'ta till' vid behov)*
b. Påverkar det användandet av anhöriga och personal som översättare? Eller andra tolk tjänster? Hur?

I förra intervjuerna kom upp några saker som jag skulle vilja följa upp

c. T ex En del menade att det var svårt ibland att förstå vad patienten sökte hjälp för. Har du upplevt det? Har du något exempel på en situation när appen då har hjälpt dig?
d. Och då med vidare undersökningar och tester? Hur gick det då du har använt appen?
e. Hur känns kroppspråkskommunikation i kombination med app:en?
f. Påverkar det hanteringstider? Hur?
g. Hur förmedlar du information till patienter som inte pratar svenska? Gör du det annorlunda nu när du har appen?
h. Påverkar det patientens förståelse, samtycke och samarbeta? Hur?
i. Påverkar det stämningen? Hur?

8. Berätta lite din situation på mottagningen

e. Hur känns det att ha nya verktyg? Ändra rutiner?
f. Är det några skillnader nu när du har appen? Vad i så fall är de största skillnaderna för dig?
g. Hur känns det?
h. Har du diskuterat appen med sina kollegor, eller sett andra använda den?
i. Tror du kommer fortsätta använda den?

9. Finns det något du vill lägga till?