

Barriers and Facilitators to Using 9-1-1 and Emergency Medical Services in a Limited English Proficiency Chinese Community

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Abstract Effective communication during a medical emergency is crucial for an appropriate emergency medical services (EMS) response. This exploratory qualitative study explored intentions to use 9-1-1 in a Chinese speaking community and the barriers and facilitators to accessing EMS. Focus groups with Chinese adults who self-reported limited English proficiency were conducted. An inductive iterative approach was used to categorize and connect themes identified in the discussions. Language difficulties, negative perceptions of EMS, perceived costs of using emergency services, and no previous experience with 9-1-1 were commonly described as barriers to calling EMS during emergencies. Positive past experiences with EMS and encountering an emergency situation perceived as too great to manage alone are common facilitators for calling 9-1-1. Further exploration is necessary to assess barriers to calling 9-1-1 unique to specific communities, test findings, and tailor interventions to improve EMS communication.

Keywords EMS · Immigrants · Underserved populations · Language proficiency · English proficiency

Introduction

Effective communication during a medical emergency is crucial for an appropriate emergency medical services (EMS) response. For a sizable portion of the United States population, language barriers can undermine this communication. The limited English proficiency (LEP) population in the United States is substantial and growing. In 2000, approximately one-sixth the United States population spoke a language other than English at home [1]. This estimate has recently increased to almost one fifth of the population with nearly half of this group reporting speaking English less than “very well.” [2] Asian language speakers are one of the fastest growing populations in the United States. Over 7 million Asians living in the United States spoke a language other than English at home in 2000 [1]. By 2008, this number had increased over 18% to nearly 8.3 million speakers [3]. These changing demographics translate into greater language and cultural diversity and pose new challenges for EMS.

Ethnic and minority groups in the United States fare more poorly than whites on several measures of health status and access to health care [4]. Ethnic groups with LEP are at even greater risk for health disparities and have been associated with lower health care utilization [5], less access to medical care and preventative care services [4, 6, 7], and lower health literacy [8]. For LEP populations, low health literacy creates greater barriers to care and is associated with use of emergency department services, rather than preventive care [9, 10].

Although reliance on emergency services is greater, EMS may not adequately address the needs of LEP communities. LEP populations are disproportionately at risk during emergencies because effective communication is hindered by factors such as differences in language,

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culture, health literacy, and poverty [11–14]. Demographic characteristics overlapping with LEP populations, such as lower health literacy, lower socioeconomic status, and ethnicity (being a person of color) have been associated with delays in seeking medical care during emergencies [15–20]. Much of the research regarding LEP communities and emergency communication has focused on Hispanic populations and the utilization of poison control centers, suggesting speaking a language other than English is a barrier to utilizing phone-based emergency resources [21–23]. Less is known about the communication between LEP callers and EMS. Research has demonstrated that EMS response times are longer for LEP callers [24]. Communication is particularly difficult at the point of first contact with the EMS operator/dispatcher when calling 9-1-1. In a recent study, interpretation services were underutilized during LEP calls and EMS telephone operators believed language difficulties negatively affected communication [25]. Little research has focused on how the growing LEP Asian population utilizes 9-1-1 and accesses EMS. This exploratory qualitative study sought to explore barriers and facilitators to using 9-1-1 and accessing EMS in a LEP Chinese community.

Methods

Study Design, Setting, and Participants

We conducted four focus groups with adult Chinese speakers living in the Seattle/King County, Washington metropolitan area between February and March 2009. To our knowledge, no prior studies have described factors that impact the decision LEP Chinese individuals have in calling 9-1-1 to access EMS. The use of focus groups is appropriate for exploring previously under researched areas [26]. Qualitative methods are effective for exploring perceptions, beliefs, and attitudes, especially when issues are complex [27]. Interaction within the focus groups often helps in revealing important information that would otherwise remain undiscovered [28].

Participants were recruited by the Chinese Information and Service Center, a non-profit community based organization providing advocacy and social support to immigrants. Eligible subjects included Chinese speakers, 18 years or older, who self-reported speaking English, “not well” or “not at all.” Purposive sampling was used to create four focus groups stratified by dialect and age. Two of the focus groups were comprised of participants whose primary dialect was Mandarin Chinese and the other two were formed by participants who spoke Cantonese Chinese. Within each dialect grouping, one group was composed of individuals less than 65 years of age and the other

greater than 65 years of age. We stratified by age hypothesizing that resources and communication strategies are likely to be different for people who are older or retired compared to younger people still in the work force. Focus group sizes ranged from 8 to 10 participants. A \$20 gift card was offered to each participant for their time. The University of Washington Institutional Review Board approved all study protocols.

Moderator Guide, Data Collection, and Analysis

Focus group moderators verbally detailed the informed consent process in the primary dialect of the participants prior to obtaining written consent and permission to audiotape the sessions. Each session lasted approximately 2 h. Moderators were tri-lingual (English, Cantonese, and Mandarin), race concordant, and had extensive experience moderating focus groups on medical and public health topics with LEP Chinese study participants. Our study’s objective was to describe intentions to use 9-1-1 and explore the barriers and facilitators to accessing EMS. Using a conceptual framework modified from Johnson’s Comprehensive Model of Information Seeking, the authors developed a moderator guide using the model’s classification of variables—antecedents, information carrier characteristics, and information seeking [29]. During the focus group discussions, a funneling strategy was used by first asking questions broad in scope such as, “What do you consider an emergency?” Later the moderator would follow up by asking questions targeting specific issues to narrow the focus. An example is, “Have you encountered any problems when calling 9-1-1?” Major topics addressed included: participants’ perceptions of emergencies, past experiences, and steps taken during these events.

All focus groups were audiotaped, translated into English, and transcribed verbatim. Transcriptions were reviewed for accuracy by the moderator. All transcripts were uploaded to Atlas.ti 5.2 (Atlas.ti Scientific Software Development GmbH, Berlin, Germany) to facilitate data management and analysis. Each transcript was read and independently coded by three of the authors. The data were analyzed through an iterative process of theme identification and synthesis, accommodating new ideas and relationships as they emerged [30]. The authors then discussed the content of each transcript, emerging themes, and codes. Discrepancies were resolved by discussion and consensus.

Results

The demographics of the 36 participants are shown in Table 1. Women comprised 53% of the sample. Almost 90% of the participants were married and nearly a third had

Table 1 Characteristics of study participants (n = 36)

	n	%
Gender		
Male	17	47
Female	19	53
Age (years)		
<50	6	17
50–59	6	17
60–69	14	39
>69	10	28
Range 40–88		
Place of birth		
Mainland China	24	67
Hong Kong	5	14
Vietnam	4	11
Cambodia	1	3
Singapore	1	3
Unknown	1	3
Education (years)		
<9	11	31
9–12	15	42
>12	10	28
Range 0–19		
Primary language/dialect spoken		
Mandarin	19	53
Cantonese	17	47
Marital status		
Married	32	89
Single	3	8
Widowed	1	3
Employment		
Full-time	3	8
Part-time	6	17
Unemployed	25	69
Other	2	6

not finished high school. Twenty-five percent were working with all of the fully employed participants and half of the part-time employed individuals participating in the younger focus groups. No differences in responses regarding EMS were seen by age groups. Average duration of residence in the United States for the participants was 14 years.

Barriers to Calling 9-1-1

Table 2 lists the common themes participants described as barriers to accessing EMS through 9-1-1 along with representative comments. The central finding discussed within

Table 2 Barriers to calling 9-1-1

Language/dialect	<i>English is not our primary language, so when we are flustered we speak Chinese first. When we are hurried we speak Chinese first. We won't switch to English</i>
	<i>I know I have problems in communicating [with the 9-1-1 operator]. I don't know English or Cantonese</i>
Belief in one's ability to manage the situation	<i>If there's a way to try your best to deal with it yourself then there's no need [to call 9-1-1]</i>
	<i>If you can make a phone call, then you don't need to call 9-1-1. You can go directly to the hospital by yourself</i>
Negative past experiences or lack of experience with 9-1-1	<i>We don't know English...Two people from the 9-1-1 hotline came. My sister was obviously sick—shaking and vomiting—and we thought if 9-1-1 came, they'd have to help her up. Instead, they wanted my sister to get up on her own. She couldn't, so I had to help her up. So when we were going in the ambulance, they didn't put a seatbelt on my sister. When we reached a curve and we turned, my sister slid off [the stretcher] and fell onto the floor...They had to stop in the middle of the intersection to fasten a seatbelt on my sister</i>
Fear of unforeseen consequences or litigation	<i>I don't want to get into trouble [for calling 9-1-1]</i>
	<i>I've never called 9-1-1. In America, you can't be a good person. Once, a person fainted, and although the victim was revived by a good-hearted person, the person [who fainted] sued him. It was alleged that the good-hearted person had moved the victim and injured internal organs in the process</i>
Negative perceptions of EMS	<i>My daughter...I've taken her directly to the hospital without calling 9-1-1 because we didn't want to wait and we didn't know how long we would have to wait. So if I go alone, it'll be much quicker</i>
	<i>There are reports that it takes a long time for emergency crews to arrive</i>
Concern about possible fees or cost for calling 9-1-1	<i>So they called 9-1-1...I heard her say that a bill came later asking her to pay some 200 dollars, almost 300. I'm asking, if we call 9-1-1 in this situation will they charge us?</i>
	<i>I want to know</i>
	<i>If I call 9-1-1, a bill comes later and it's a hefty one. If I am able to get myself to the hospital why wouldn't I?</i>
	<i>I have a friend who called 9-1-1 and it cost him 600 bucks</i>
Confusion about how the system works	<i>When he called 9-1-1, someone fainted. He needed an ambulance, but they still sent...firemen first, and then they sent for the ambulance. So it takes more time</i>
	<i>The hospital telephone number—you can call day or night and they will send you an ambulance right away</i>
Feeling that one is resigned to one's fate	<i>There is nothing you can do. You can't make a phone call. You cannot make it</i>
	<i>If you are alone, who can make the call? You can do nothing...There is nothing you can do...Death is your destination</i>

and across all focus groups was the barrier of limited English fluency. One participant shared her previous experience with calling 9-1-1, “There was a fire! So we called 9-1-1. But [the operator] was speaking English and I was very scared...At the other end [of the line] was an English speaker, but I don’t understand any English, so I hung up.” Some participants acknowledged that Chinese interpreters, available during 9-1-1 calls might mitigate the language barrier, however, participants in the Mandarin speaking focus groups were not confident the system would be able to provide access to the correct Chinese dialect. One Mandarin speaker explained, “I hope that they [9-1-1 operators] will find a Mandarin speaker...If you happen to get a Cantonese speaking person, he won’t understand what you’re talking about.”

Participants believe conversations with EMS that require interpreters or entail struggling with English are time consuming and burdensome. By not calling 9-1-1 or using EMS, participants avoid the complications involved with these processes and reduce the number of steps and delays to reaching the hospital. One participant described, “We’ve taken [my daughter] directly to the hospital without calling 9-1-1 because we didn’t want to wait and we didn’t know how long we would have to wait. So if I go myself, it’ll be much quicker.”

Although most of the participants lacked prior experience calling 9-1-1 or using EMS personally, almost all had heard accounts from friends, family, or other community members that affected their perceptions. This lack of experience combined with a lack of knowledge of how the emergency system functions leads to fear and anxiety about accessing EMS, limiting its use. Another participant stated, “Calling 9-1-1 is very scary. Sometimes when you’re frightened, you can’t call 9-1-1.” Participants were less likely to use EMS if they perceived that the emergency situation encountered was something they could effectively manage by themselves. This was viewed as more efficient than struggling with 9-1-1. Situations that were described as manageable were when the person requiring help was ambulatory, conscious, talking, or did not sustain a “bad injury.” One person stated, “If there’s a way to try your best to deal with it yourself, then there’s no need [to call 9-1-1].”

Confusion stemming from limited experience and knowledge about the system creates misunderstandings about the type and quality of services EMS provides. This is particularly true for participants who have had prior negative experiences with EMS. A female participant described past instances when she had sought medical assistance, “Another commonplace occurrence is that when we call 9-1-1, an ambulance doesn’t come. Even if you ask specifically for an ambulance, a fire truck shows up first. Most of the time it’s six...men arriving, all firemen,

and no paramedics, and only then do they call an ambulance. So why waste so much time waiting for them? If it’s in my ability to get into my own car, why not drive myself?” This idea was shared by several other participants who believed they could access care faster and easier by using their own means or transportation than by calling 9-1-1. In all focus groups, a few participants discussed previous negative experiences with EMS, indicating a reluctance to call 9-1-1 in the future.

Concerns over fees for using the system or getting involved with unwanted litigation were other deterrents from using EMS. The following exchange from the second focus group illustrates these findings.

Participant A: *“For Asians, there’s an issue with resources.”*

Participant B: *“Yeah no money.”*

Participant C: *“No insurance.”*

Participant A: *“So if it’s possible to go to the hospital by myself then I’d go. Take the ambulance out of the equation.”*

Facilitators to Calling 9-1-1

Whereas manageable emergency situations and negative perceptions and past experiences were described as barriers to calling 9-1-1, common findings participants reported that facilitate calling 9-1-1 were positive past experiences with EMS, perceptions EMS fulfilled their needs, and believing that the emergency situation encountered was beyond what one could handle alone. For Cantonese speakers, knowing that an interpreter was available when calling 9-1-1 was a facilitator. Table 3 lists the facilitators with representative comments.

Despite the barriers to using EMS, participants across groups would call 9-1-1 if, on the balance, they perceived the benefits of using EMS to be greater than the burden of calling 9-1-1 and the risks posed by the emergency situation. The perception that an emergency is of a significant magnitude is a driver for participants to use EMS. In these cases, the motivators to call 9-1-1 far surpass the barriers associated with language because the seriousness of the emergency exceeds their ability to control the situation on their own. A participant explained, “If I see someone faint and I can’t revive them, or if something happens at home like a fire, I have to call [9-1-1]. Things you can’t take control of, you have to call [9-1-1].” Emergency situations that participants described as beyond their control and requiring EMS included major trauma, loss of consciousness, or events they perceived as life threatening.

Most of the participants who had prior experience using EMS described positive experiences regarding their interactions with the dispatcher and first responders and

Table 3 Facilitators to using 9-1-1

Perception that the situation exceeds their ability to manage on their own
<i>If it's something I can't take care of myself or don't know which department to call, I'll call 9-1-1</i>
<i>If you're unable to handle it yourself then you have to call [9-1-1]</i>
Positive past experiences with EMS
<i>I've called a few times! Not many problems</i>
Perception EMS meets their needs and expectations
<i>You have to wait a long time if you go [to the hospital] on your own. If an ambulance takes you, then you get an immediate examination. They take you into a room right away. If you go on your own, then you have to wait out front</i>
<i>As soon as you call 9-1-1, they will come quickly</i>
Knowing a telephone interpreter is available
<i>I told my family, if something happens, call 9-1-1 first. No matter what the other party says, first say, "Chinese!" Then he or she will find a person who speaks Chinese for you</i>
<i>If you don't hang up your cell phone and you say you are Chinese, people will find someone to translate for you...You must say you are Chinese. They will find someone to translate for you</i>

perceived they received quality care. These participants viewed EMS as fast and helpful and expressed that they would likely call 9-1-1 again in an emergency. Examples of some comments were, "The system is very effective."; "The [9-1-1] system is already there. It is simple and efficient."; and "As soon as you call 9-1-1, they come quickly." Since the majority of participants had no prior experience calling EMS, their perceptions of EMS played a significant role in determining whether or not they would call 9-1-1 in an emergency. Some participants had an expectation that EMS should be fast and effective. Those who believe EMS could fulfill those needs claimed they would use it during an emergency.

Strategies Employed When Calling 9-1-1

Recognizing that language barriers prevent effective communication with EMS operators, participants described strategies they have employed in the past or would use in the future to call 9-1-1. A consistent strategy described across focus groups was to find a friend or family member who spoke English with greater proficiency to call 9-1-1 on the behalf of others. A participant described, "My husband got off the bus. Another woman also got off, but then she collapsed. My husband called me saying, 'A woman collapsed and can't move!' So he told me to call 9-1-1, because he can't speak English." Sometimes, this search for a speaker with greater English proficiency was a prolonged process which involved contacting multiple people before a 9-1-1 call was made. Once connected to a 9-1-1 operator, participants described attempting to access the

Table 4 Strategies employed when calling 9-1-1

Finding someone more English proficient from one's personal network to call
<i>My son made the call. I lived with my children. I told him to call 9-1-1</i>
<i>My English is not good. I will notify my son first if I have an emergency. Then my son will notify my daughter</i>
<i>If you know that your wife or husband can communicate, then the quickest way is to call them, and have them call [EMS] for you. Call 9-1-1, telling them which street you're on, asking them to call in your place</i>
Repetition and speaking slowly
<i>The [9-1-1 operator] is very patient listening to you. So you just tell them what's going on, and speak slowly so they know your situation. At most, if they do not capture the meaning, I'll have to say it again and then basically they'll know what happened</i>
Use of simple and key English words
<i>Let's say if someone faints and falls down, even if you don't know what illness he has, you should say, "Fall down!" Then [the 9-1-1 dispatcher] will know it's urgent...You don't need to know what the specific problem is. If [the 9-1-1 dispatcher] knows someone fell, they'll come immediately</i>
<i>The only problem is that it would be an issue sometimes if you don't know English. That's the main problem. But if you can speak a sentence or two in simple English, there should not be a problem</i>
Find ways to access the interpreter
<i>You can just say, "Chinese! Chinese!" They'll act very quickly and give you an interpreter. It's important for you to say the language you speak. They can find an interpreter in that language</i>
<i>Call 9-1-1 and say, "Chinese language! Mandarin!" If you say, "I speak in Chinese," they might find someone who speaks Cantonese</i>

interpreter or using other strategies with their limited English ability to communicate their needs. Table 4 lists strategies described by participants to improve communication with 9-1-1 and some representative statements.

Discussion

In this study, LEP Chinese participants offered insights into their views on their intention to use 9-1-1 and perception of EMS. A central theme was that language differences create barriers that prevent effective access to EMS. Participants also suggested that past experiences, perceptions, and the magnitude of an emergency might impact the decision to call 9-1-1. Discussions revealed anxieties about their ability to communicate effectively and worries about financial and legal implications. Accessing the proper dialect was a particular concern among those in the Mandarin focus groups. This appears to be based on their assumption that Cantonese Chinese is more commonly spoken than other Chinese dialects in the region, including

Mandarin. For the decision to call 9-1-1, the potential benefits were weighed against the perceived effort, time, and challenge needed to use the system. For participants who had never used EMS, the barriers to calling 9-1-1 were particularly high as they had a lack of familiarity and understanding of how the system worked. Negative perceptions of EMS were also a barrier to using the system. This has been described as a barrier to EMS utilization in other ethnic groups as well [31].

The described barriers suggest Chinese LEP communities may underuse 9-1-1, find medical care by other means, or forgo assistance altogether during emergencies. Perceiving shortcomings in EMS services for the LEP community, participants described seeking assistance in other ways. This possible underuse of 9-1-1 is consistent with research describing the underuse of phone based emergency communication resources among Hispanic LEP speakers [22, 23]. With decreased access to EMS, LEP communities may use alternative strategies to reach emergency departments, which could lead to delays in seeking care and treatment. The hesitation and deliberation LEP individuals might go through before calling 9-1-1 may lead to a lag in response and treatment. Some of the communication strategies participants described, such as contacting friends or family members who are more proficient in English to call 9-1-1 on their behalf would also lead to delays.

This exploratory study highlights potential gaps in EMS communication between LEP participants and 9-1-1 operators. More research on improving communication during emergencies is required. Our findings suggest increasing the use of interpreter services during 9-1-1 calls may be an area of focus. Improving the ease of accessing this service for operators and finding ways to increase the likelihood of successfully obtaining the correct language and dialect might yield benefits. LEP callers may benefit from tailored education on EMS services. This has the potential to improve understanding of how the system works and to decrease anxiety for new callers. Efforts designed to teach callers how to request interpreters for their language and dialect and to relay basic ideas, such as the type of emergency may address the primary barriers to calling 9-1-1 and build on the strategies identified in the study. The development and evaluation of programs that can increase the frequency of interpreter services use or employ new communication strategies are other areas to be further explored.

This project is the first step of a much larger collaborative project involving the community, academia, public health, and emergency services. As with most qualitative studies, the samples are not representative of the population. Differences in age, dialect, and duration of residence in the United States may not have been revealed in this study. Additionally, many of the participants have not had any

direct experience with 9-1-1 and their decisions to call or not call 9-1-1 are influenced by perceived barriers and facilitators. It is unknown what would happen during an actual emergency. Findings need to be confirmed with a survey of a representative sample to generalize these observations. Despite these limitations, the concepts described in this project create a set point for further research. Language, beliefs, and attitudes impact the accessibility and communication LEP Chinese speakers have with phone-based emergency systems. Further exploration of barriers unique to specific LEP populations is necessary to better understand behaviors related to calling 9-1-1 and to tailor interventions to improve EMS communication.

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