

Improving First Aid Skills: How Local Conceptions of Risk Influence User Engagement with the First Aid App in Israel and Malta

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Abstract. First Aid Apps enable the public to learn skills that could save their lives and increase their resilience. A comparative review of the adoption of the First Aid App by Red Cross National Societies revealed context specific factors influencing local app engagement. Drawing on these differences, this paper compares engagement in response to critical events in Israel and Malta. Whilst Malta has been consistently ranked as the second most natural disaster risk free nation, Israel has been plagued by a variety of ongoing conflict related crises. This paper discusses local attitudes to risk and their influence on community engagement with the app. The evidence indicates that local conceptions of risk not only influence app engagement but also the motivations for adopting the app, the development of the app and the ability to retain the public's interest in the app.

Keywords: First aid app · User engagement · Risk

1 Introduction

The increased use of smartphones and tablet computers has resulted in mobile technology and its associated software applications (i.e., apps) becoming part of our daily lives [1]. Health related apps enable users to access a vast amount of information anywhere and at any time that could potentially save their lives. One such example is the First Aid App, adopted across the Red Cross Red Crescent (RCRC) network. The First Aid App enables users to learn or refresh first aid skills or disaster countermeasures before and during an emergency [2]. While the First Aid App is available in 76 countries, the rates of adoption vary from as few as three users in Cameroon to 249, 974 users in Mexico [3]. This paper examines how local conceptions of risk have potentially influenced these rates of adoption and app engagement in two Mediterranean countries with contrasting risk profiles; Israel and Malta. The results here are intended to provoke discussion and questions for future research into possible relations between risk and the increased use of first aid apps.

2 First Aid Apps

The increasing use of smartphones and related apps globally provides a medium for spreading health related information to a wider audience. There are many different health apps available for this purpose. For instance, in March 2013, mobile phone users could choose from approximately 97,000 health related apps [4]. Research highlights how the use of first aid and CPR (Cardiopulmonary resuscitation) apps by either laypeople or health care professionals, significantly improves the performance of lifesaving skills in an emergency [5]. However, research by Thygeson et al. found that not all First Aid Apps provide equal value [5]. Based on an analysis of 65 free and paid-for First Aid Apps available on iTunes, the study found mixed levels of adherence to first aid guidelines, with the majority of guidelines not being adhered to by at least 50 % of the apps analysed. For instance, of the 65 apps analysed, only 32.3 % adhered to the guidelines for performing a head-to-toe check for injuries. Thus, whilst there are a wide range of First Aid Apps for the public to choose from, attention should be placed on apps developed by recognised first aid providers that adhere to first aid guidelines.

Whilst the authors are not aware of any research that specifically examines the influences on users' adoption of and engagement with First Aid Apps, studies have recently begun investigating the factors influencing the adoption of health apps. For instance, based on the Technology Acceptance Model (TAM) II, Cho et al. investigated how health consciousness (individual interest in and awareness of one's own health), health information orientation (the extent to which an individual seeks information from different sources), eHealth literacy (the ability to engage with and apply health information from electronic sources), Internet health information use efficacy (the cognitive ability to search for health information using the Internet), and subjective norm (social influence) influence perceived usefulness and the perceived ease of use in relation to adopting health apps [4]. The study found that the perceived usefulness of health apps was strongly related to health consciousness and subjective norms. Furthermore, the perceived ease of using health apps was significantly influenced by Internet health information efficacy. Whilst the study by Cho et al. provides an understanding of the different factors influencing the adoption of health apps, there is a dearth of research on the factors influencing the adoption and use of First Aid Apps. Against this backdrop, this paper examines how local conceptions of risk influence the use of and engagement with the First Aid App in two Mediterranean countries, Israel and Malta.

3 Methodology

Following the release of First Aid Apps by the American Red Cross and the British Red Cross, the Global Disaster Preparedness Centre (GDPC) launched the Universal App Program in May 2013 in order to expand the availability of the app into new countries [6]. The research that this paper is based on involved a comparative study of the development, rollout and marketing of the First Aid App across nine countries. Semi-structured interviews were conducted with Red Cross members involved in the development and rollout of the app in each of the countries [13]. The interviews were accompanied

by desk based research into the Red Cross national societies involved and, demographic and technological data about the countries being investigated. Google Analytics was also utilised to monitor user engagement with the app and comments boards on Google Play and iTunes were consulted to record users' views of the app. The two countries focused on in this paper have very different levels of risk and we seek to explore what the app may reveal about local attitudes to risk. As the app adoption rates vary significantly, with Malta having 4,504 users compared to 124,775 First Aid App users in Israel [3], the GDPC commissioned a cross-country comparative analysis to understand the potential impact of the host organisation in encouraging the use of the app and, specific factors influencing local user engagement with the app. Semi-structured interviews were conducted with five members of the Malta Red Cross and two members of the Magen David Adom (MDA - the equivalent of the Red Cross in Israel).

The desk based research analysed the risks faced by each country by collecting data from the EM-DAT website, the international disaster database, as well as each organisation's website and news reports. Google Analytics data was examined for different time periods, including: the first six months of the app's life, six months of comparable app activity between June and November 2015, the entire life of the app, and following two critical events that occurred in each country. The first six months of the app's life were selected in order to compare National Societies' marketing strategies and user engagement in the initial weeks following the launch. The final six months leading up to November 2015 served to compare changes in user engagement since the launch of the app, whilst the period following critical events served to observe fluctuations in user engagement and to determine whether critical events were impacting on engagement with the app.

4 Local Conceptions of Risk

The analysis of primary and secondary data offered insights into the significance of the First Aid App in countering risks, and illustrated how the app was adapted to suit each community. The comparison between Malta and Israel provided particularly interesting insights into how two Mediterranean countries with very different levels of risk adapted the app to their needs and points to some local perceptions of risk in each country. Whilst the relations between conceptions of risk and app adoption may be made solely on each country's risk profiles, the data collected through interviews and the analysis of Google Analytics data adds another level of depth to the analysis. Specifically, interviewees indicated that monitoring of user engagement with the app allowed them to connect with members of their own communities and learn from them (see examples further in this section). The interviews also provided the basis for questions that could drive further research, such as: In what ways do mobile applications foster communication between first responders and the general public? To what extent and how, does the organisation's reputation affect communication? One example of the latter is the increased engagement between Malta Red Cross personnel and 'beachgoers' discussing the app's features during lifeguarding duties.

Interviews revealed that Israel does not have serious natural disasters, but suffers from severe security threats related to terrorism and armed conflict (interviewees referred to stabbings and missile attacks in particular). According to interviewees, these types of attacks are considered to be the third most significant threat to people's lives. The most pertinent and widespread risks were considered to be road accidents and domestic accidents. According to EM-DAT, the most severe natural disaster in the last 20 years was a forest fire that killed 44 people. Casualties were also attributed to floods (18), a pandemic (12), and storms (27) [7]. Although Israel suffers from a variety of risks, particularly conflict related, interviewees revealed that few emergency services exist. According to one interviewee, MDA is the only official emergency service for Israel. The latter suggests that people's ability to help themselves is key here. The MDA are concerned with the provision of first aid and first aid training, including providing first aid instruction for the volunteer program that they operate. They maintain storage of blood, plasma and their by-products and are involved in the transportation of patients, doctors, nurses and other medical staff. In addition, they also deal with the evacuation of those wounded or killed in road accidents [8]. A key motivation for MDA in adopting the app was to give users a sense of safety and security, i.e., in the event of an emergency to have information readily available to them at any time (even without any connectivity). Another key motivation for introducing the First Aid App in Israel was to reach out to young people, to provide them with something "cool". Furthermore, MDA wanted to use the app for marketing purposes. Increasing their marketing capability would also ensure that a wider audience would learn about first aid, as well as the emergency services provided by MDA.

Some similar observations were noted in the case of Malta, although the local context and level of risk was considerably different. According to the 2014 UN 'World Risk Report', Malta was classified as the second safest country in the world and the second country least susceptible to natural disasters [9]. Crime in Malta is also very low, with the most pertinent risks being: poor condition of roads and erratic driving, flooding during winter torrential rains and, in summer, the risk of jellyfish bites [10]. More recent risks, focused around the coastal areas, are the strong sea currents that have resulted in a number of drownings, as well as spinal injuries from recreational diving in coastal zones [11, 12]. Members of the Malta Red Cross stated that the app would aid the organisation in spreading awareness of first aid. Since a major part of the organisation's activities is focused on the provision of first aid instruction and training, they also hoped that the app would act as a refresher for those who had already taken a first aid course and, would provide them with an ever available source of information that would give them the confidence to provide first aid assistance in the event of an emergency. In fact, Red Cross members cited lack of confidence as one of the main reasons for people not providing first aid assistance in emergencies, out of a fear of 'getting it wrong' or 'being sued'. One interviewee's impression was that locals deemed preparedness to be somebody else's responsibility, such as nurses or paramedics, but never their own. Another interviewee stated that people are not aware of what to do in an emergency situation. In response to these diverging levels and perceptions of risk, the app took on very different formats following development in each of these country contexts. In Israel, MDA specifically developed guidelines for dealing with knife attacks and what to do in the

event of air attacks. The most popular first aid topic accessed by users was ‘bleeding’, which is indicative of people’s perceptions of risk whether this is in dealing with particularly devastating road accidents, or knife attacks or the result of civil conflict. The Malta Red Cross on the other hand, developed a section of the app that dealt with beach-related incidents such as how to deal with jellyfish stings and the risks of sunburn and, removed much of the section on dealing with natural disasters.

5 Risk Based App Engagement

Earlier in this paper we highlighted some of the perceptions of risk that were brought to our attention by Red Cross members in Malta and Israel (MDA). In the case of Malta, the level of risk to hazards and large-scale critical events was deemed to be non-existent. Rather, risk for Malta Red Cross members in this context, was represented by a perceived general apathy to emergency situations and a lack of involvement by laypeople in providing assistance in emergencies. Red Cross members asserted that people were likely to rely on others to help them rather than help themselves. Conversely, perceptions of risk in Israel centred around the frequent and real threat of violence and conflict. The appeal of the app among members of the general public was also its ability to deliver notifications on developing emergencies. For example, following the spate of stabbings in late 2015, the app was immediately updated with information on what to do in the case of such an emergency.

To further illustrate how events influence user engagement with the app and what they reveal about risk, research was conducted into user engagement with the app during and after critical national events. On October 8th 2015, seven civilians and one soldier were wounded in four different stabbings across Israel. The attacks were carried out by Palestinians in what were the first of a string of attacks on Israelis using “everyday” objects like knives and cars which, due to their ubiquity and everyday use, are readily available and raise little suspicion [14]. The data revealed an overall surge in user engagement with the app in the days following the stabbings, with a particularly high increase on the day after the stabbings with a surge of 244 % (+4406) of users. Given that the most popular first aid topic on this day was bleeding, it is safe to assume that the event had a credible impact on user engagement. The three most popular topics on the day were: bleeding (3,882 views), stabbing victim (3,814 views) and burns (1,922 views). The MDA stated that one of the main motivations for adopting the app was to give people a sense of safety and security. Given that the random and widespread attacks using ‘everyday objects’ could have been geared at targeting people’s sense of security, the overwhelming increase in user engagement with the app during and following the incident, suggests that the app may well have succeeded in providing a source of security in a time of uncertainty.

Conversely, in the case of Malta the event of national significance was a choking incident, given the absence of high risk events plaguing the island state. On 22 September 2015, a 57-year-old woman choked to death while having lunch in a packed restaurant. Neither the staff nor any other diners were able to properly assist her. Her brother released a public appeal for catering staff to be trained in basic first aid and the news

story caused a stir in the local community with a surge in newspaper reports on the importance of first aid [15]. Two Malta RC interviewees stated that such incidents tended to increase public awareness and interest in first aid, but this interest was short-lived. In fact, a similar incident had taken place in 2001, where a 20-year-old had also choked to death in a packed restaurant. Despite appeals then for catering staff to learn basic first aid, no action had been taken and the incident was quickly forgotten. Interviewees used these examples to explain small surges in interest in the First Aid App, as well as to demonstrate the lack of preparedness of the local community. Data illustrated that there was a notable increase in user engagement in the days following the choking incident, where user engagement on the two days following the incident was more than double the 30-day average following the event (40 users as opposed to the monthly average of 14.8), and the most popular first aid topic was ‘choking’. This is probably due to newspaper articles in the national newspapers during these two days that highlighted the importance of first aid and, where commentators actively referred to the First Aid App.

In these two case studies we have illustrated that although the levels of risk are very different in each country, some common threads may be drawn between them. In both cases the increased user engagement with the app suggests that users turn to the app to give themselves a sense of security; knowledge of first aid is perceived as a means to countering risk. However, whilst choking may be seen as an incident that may be prepared for and averted through basic first aid, the level of safety in Maltese day to day life suggests a reluctance to learn or apply such skills and points towards dependency on emergency services. As Malta Red Cross members alluded to, the real risk is a general apathy towards first aid and preparedness. The situation seems to be reversed in the case of Israel, where risk is governed by unpredictability and frequency and thus, a necessity to be self-reliant or to be able to help others. The latter comes across in the MDA’s insistence on targeting younger people in what may be interpreted as an attempt to instil basic first aid skills from a young age, as well as in the regular and immediate updating of first aid information available on the app.

6 Conclusion

This paper has examined how local conceptions of risk influence local engagement with the First Aid App in Israel and Malta. It has shown how conceptions of risk in Israel and Malta not only influence engagement with the app but also the motivations for adopting the app, the development of the app and the ability to retain the public’s interest in the app.

Further research with users is required to understand how different types of critical events impact upon the use of and engagement with the First Aid App. This information could be used to support Red Cross Red Crescent National Societies in developing app content and additional features (e.g., warning notifications), and in promoting the app before, during, and following critical events.

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