# When the bombs go off the mobiles ring:

# The aftermath of terrorist attacks[1]

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Israel has been one of the most rapid adopters of the mobile phone. The number of mobile subscribers and the expenditure for cellular telephony has long exceeded that of fixed telephony services (Schejter & Cohen, 2002). Data for 2002 indicate that were over 6.3 million mobile phones in Israel with 95.45 mobile subscribers for every 100 persons (International Telecommunication Union, 2004) and 78.8% of Israeli households own at least one mobile and 44.0% own two or more (Central Bureau of Statistics, 2003).

So why would such a small country as Israel, with relatively short distances between places, have such a ubiquitous presence of mobiles? Three related possibilities come to mind. First, the great cohesiveness of the society, especially among family members, coupled with the great need that Israelis seemingly have to be in touch with one another (Herzog & Ben Rafael, 2001); second, the infatuation that Israelis seem to have with technology (Schejter & Cohen, 2002); and third, the idea of having a mobile available in case of emergency, particularly following various acts of terror during the past decade and the eve of and during the second Palestinian Intifada since September 2000.

In some of our earlier research we suggested that while people may initially rationalize their acquisition of a mobile phone as a security need, they end up using it in quite a variety of unrelated ways (Cohen & Lemish, 2004a). At the same time it seems that owning a mobile does create an illusionary sense of security. It is not how often one uses the mobile during an emergency as much as being confident by having it available “just in case.” Although to the best of our knowledge this phenomenon has not been studied systematically, the “just in case” syndrome has probably become the most common justification given by Israelis for subscribing to a mobile phone service.

The current paper has two related objectives: first, to discuss the notion of emergencies and the seeming paradox in that while people claim to buy a mobile for situations that rarely happen; and second, to present and discuss survey and real-time data on the use of the mobile following acts of terror. These objectives seem to fit well within the framework of the sub-theme of the current conference: Mobile Communication and Local Life. However, given the paucity of research and literature dealing with these issues, no formal hypotheses are presented here.

## Mobiles in emergencies

The research literature is rife with material on the macro societal level concerning the behavior of people during emergencies such as war, natural disasters and political turmoil. The voluminous literature on "risk communication" deals with how governments, organizations and communities can deal with such crises. Research has also been conducted on personal crises and coping with emergencies, especially in the psychiatric setting. However, a thorough computer search of the social science literature for studies focusing on the use of telephones in general and mobiles in particular during emergency situations failed to produce meaningful insights.

Mobiles in emergencies have received marginal attention so far. In a study conducted in Honk Kong on the uses and gratifications of the mobile phone (Leung & Wei, 2000) the researchers included only a single item "to feel safe and secure in case of emergency." In their factor analysis, that item was found to be part of the seventh and last factor – termed by the authors as "reassurance" but explaining little variance.

Katz & Rice (2002) presented and analyzed a series of anecdotes on how several individuals used fixed and mobile phones following the events of September 11. They point out how "… new communication technologies both represent and shape Syntopia – a dynamic social context where media are used for diverse human

purposes … both intentionally and unintentionally, both in expected and unexpected ways, to communicate both intense emotions and immediacy as well as objective command control information, for ill and for good" (p. 252).

Finally, in one of our studies (Cohen & Lemish, 2003) we used both survey research and real-time interactive voice response (IVR) data and found that emergency services appeared last in a long list of categories of people and agencies with whom the respondents said they generally speak (as reported in the survey data) and actually spoke with (using the IVR data). Also, an analysis of qualitative interviews conducted as part of that study provided additional support of this phenomenon (Lemish & Cohen, forthcoming).

The main advantage of the mobile phone is, as the term implies, its mobility, that is, the fact that it can operate almost anywhere, and of course any time, even on the move. While most people live their daily lives in familiar and routine ways, an event that creates an emergency can lead to uncertainty, anxiety and stress. Under normal circumstances, the line telephone would be used to handle most situations and provide the needed interaction among people. This is probably still the case today although growing numbers of people worldwide are turning to the mobile phone for their mundane interactions as well.

Emergency situations are different, however. Most emergencies happen suddenly, without advanced warning, and without being able to be prepared. They can happen anywhere, in unexpected places and at unexpected times. In order to use a line telephone, one must be available; but line phones are not available everywhere. Thus the mobile phone may help people to reduce uncertainty, it may enable them to take control over the situation and to manage the crisis. The mobile not only allows the anxious person to call his/her loved ones or friends from wherever he or she happens

to be, but it also makes it possible for the caller to immediately locate the person being called, wherever that person is, assuming that she or he also has a mobile. And of course the mobile can be very functional, even life-saving, when used to call for help.

There are conceivably many kinds of emergency situations. Some emergencies are universal – such as sudden health problems, traffic accidents or criminal assaults on people and property – while others can be particular to certain societies or countries – such as places with a high probability of earthquakes, hurricanes or tornados, as well as war and terror. And yet, not everyone might consider the same situations as emergencies or at least as being of the same magnitude. And fortunately, emergency situations are generally far and few between. Furthermore, emergencies can be analyzed on several dimensions, such as: how life threatening they are; how emotionally involving they are; how easy or difficult it is to manage them; and how long can one survive without resolving them.

In addition to common universal emergencies such as vehicles breaking down, criminal assaults and medical problems, Israelis have experienced over the years numerous security-related emergencies such as war, rockets from across the border and suicide bombings.[2] When the latter emergencies occur they become highly salient. Accordingly, in many families, adults – as well as adolescents and young children – have acquired a personal mobile phone with the idea of being able to contact each other in the event of terror attacks or military activity. Thus the mobile phone might serve as illusionary protection or security for family members, and in

[2] During the second Palestinian Intifada, as of September 2000 and up until the time of writing, there have been more than 21,000 incidents (IDF, 2004). During that period over 940 Israelis have been killed as well as many more Palestinians. The most notorious events have been suicide bombings in buses and restaurants as well as ambushes of vehicles traveling on lonely roads.

worst-case scenarios people could instantly locate their loved ones and find out how they are doing. This might also create a sense, albeit imagined, of control over an otherwise incomprehensible anxiety.

With this background in mind, the specific objective of the current paper is to determine the extent to which Israelis use their mobile phones following terror attacks. This was done using two methods: survey research and the analysis of real-time data.

## Survey research

Telephone interviews were conducted in June 2003 with a representative sample of 1200 Israeli adults, aged 18 and above, with a quota set to include an equal number of women and men. The ages ranged from 18 to 89 with a median age of 38. All the respondents owned a mobile phone, a fact that was established by a screening question. The interviews were conducted in Hebrew, Arabic or Russian – the most prevalent languages in Israel – depending upon the need of the respondents.[3]

In the course of designing the questionnaire, ten focus groups were arranged with people of various ages and occupations. One of the main issues discussed in the focus groups was the nature of emergencies, the kind of emergencies that people encounter in their daily lives, and the role of the telephone in general and of the mobile in particular in helping to deal with emergencies. The focus group discussions generated a list of emergencies that were used in the questionnaire.

The respondents were asked to reply in their own words to an open question concerning the kinds of emergencies people encounter in general. The responses were

[3] Based on the screening for mobile phone owners, and taking into account "no answers", busy lines, answering machines, etc., the response rate for completed interviews was approximately 1:5. The authors designed the questionnaire and the fieldwork was conducted by *Market Watch*, a leading Israeli research firm.

coded into 19 pre-defined categories as well as “other.” Of the 1200 respondents, 209 could not indicate a single emergency. Of the remaining 991 respondents 926 mentioned a total of 2057 emergencies, or a mean of 2.22 emergencies per respondent and 65 gave “other” responses. Four dominant categories emerged: “traffic accidents,” “breakdown of vehicles,” “terror attacks,” and “urgent medical problems” with the remaining responses thinly spread across the other 15 categories.

Next, a series of questions were presented dealing with actual use of the mobile phones in all the emergency situations, with responses ranging from “never” to “many times.” These data presented quite a different picture with the greatest use being of the universal type: informing someone of being late to arrive somewhere, providing an urgent message, calling a taxi, a vehicle breakdown, getting directions, and being late to pick up a child. On the other hand, mobile phone calls related to society-specific (or in this case Israeli-specific) emergencies, such as terrorist attacks, military action or rockets from across the border were much less prominent.

These findings suggest that when people are asked, in general, what kind of emergencies they encounter, they put terror high on the list, but when asked how often they uses the mobile in such situations, the relative position of such events are much less pronounced. These findings may seem at first to be contradictory, but as often happens, when people are asked about a phenomenon as it occurs among people in general, they give one kind of response, whereas when asked about *their own behavior* they provide different answers. This is similar to the notion of the “third person effect” (Davison, 1983; Perloff, 2002), according to which people believe that the effects of the media will not be on them but on others. In fact, the “third person effect” was also found in our own earlier research (Lemish and Cohen, forthcoming)

showing a perceptual gap between the beliefs concerning the role of mobile phones in peoples' own personal behavior patterns as compared to that of others.

Subsequent questions in the survey dealt with specific uses of the mobile phone following terror attacks. The data show that 80.5% of the respondents said the mobile can help quite a bit or to some extent to obtain information during emergencies, 75.3% said that the mobile can actually help get information, and 66.4% said that it can help provide emotional support during an emergency.

The respondents were also asked whether or not they were actually present in a place where they could see or hear a terrorist attack. Those replying affirmatively – 9% who witnessed more than one event and 19% who witnessed only one event – were asked if they called their loved ones and/or friends to tell them that they were alright or to find out how their loved ones and/or friends were or to share their feelings with them. The respondents who only heard about the attacks from the media or by word-of-mouth were asked the same three questions, worded accordingly.

The data show that the more direct experience people had with the terrorist events, the more they replied in the affirmative: Of those who had the most experience 67.7% phoned to find out how others were doing compared with only 38.8% for those with the least experience; regarding telling others that one was alright, the range was from 66.7% to 51.2%; and the range for sharing feelings with other people was from 36.1% to 25.6%.

## Real-time measures of mobile use

The most common method employed by social scientists to measure media-related phenomena has been the questionnaire. The validity of this major research tool has generally been considered satisfactory but certain problems do exists, mainly when attempting to ascertain the frequency with which people do certain things. This

is due to the fact that people often find it difficult to reliably estimate the amount of such behaviors using recall questions and that the performance of such behaviors "in general" is not always useful regarding specific circumstances that are of interest to the researcher. In such cases, it has sometimes been possible to use technology to assist in obtaining such data.

One such example is the use of People Meters for measuring television viewing, despite some of its manifest problems (Webster, 2000). While people find it difficult to report exactly when and what they watch on television, the electronic measurement provides some useful real-time data. Studying leisure-time behavior is another example. Using the Experience Sampling Method, research subjects carry a beeper at all times and are required to note and record their whereabouts, activities and feelings whenever the beeper sounds at random points in time (Kubey and Csikszentmihalyi, 1990).

Technology can also be utilized in studying mobile phone use. In earlier research we compared questionnaire data on habitual use with real-time data obtained via interactive voice responses technology (Cohen & Lemish, 2003) where participants provided responses to a series of questions immediately following each outgoing and incoming call. That study indicated correspondence between the two methods on some variables and disparity on others.

In the current study we used real-time aggregate non-reactive data to determining the use of mobiles following terrorist attacks. Seven of the numerous attacks that occurred in Israel in 2002 were selected varying in terms of the nature and location of the event, the day of week and the time of day.

For each event analyzed, aggregate data were obtained from *Cellcom, Ltd.*, Israel's largest mobile phone company, regarding all attempted calls[4] and all completed calls[5] during a seven-hour period, including the round hour during which the event occurred, one hour before the event, and five hours following the event. An analysis was made of all the calls during round hours in three geographic areas: (a) a 2 km radius from the site of the incident (where people present could either see or at least hear the explosion); (b) a ring with a radius of an additional 8 km (which typically included the entire city or region); and (c) the remaining area of the country. A "control" period was selected for each incident one week prior to or following each incident, using the same hours and geographic regions.

In this paper we present the data for three incidents, varying in the nature of the event in terms of people involved, the location and the time of day. It should be noted that we are interested only in the patterns of the calls rather than in their absolute frequency since our data are derived from only one (albeit the largest) of Israel's four mobile phone companies.[6] It should also be noted that we do not present data regarding calls made by line phones. Finally, we cannot distinguish between calls that were made to other mobile phones or to line phones.

Mexico Street, Jerusalem

On Thursday, November 21, 2002, at 07:14 a suicide bomber blew himself up on a city bus that was picking up passengers in a Jerusalem neighborhood. Eleven passengers, including children on their way to school, were killed and more than twenty people were wounded.

[4] An attempted call is any call dialed regardless of whether it was answered or not, including obtaining a busy signal.
[5] A completed call is any call that was answered by a recipient or by an answering machine.
[6] We have no reason to believe, however, that the patterns obtained would be different for the other companies.

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Figure 1 about here

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As Figure 1 illustrates, in the immediate zone of the incident (0-2 km radius) between 7-8 am when the bombing took place, there were more than ten times as many calls attempted compared to the control period one week earlier. There were also nearly five times as many calls completed. Within 3 hours the calling patterns returned to normal. In the 2-10 km zone, a similar pattern was obtained, except for the fact that the gaps between the day of the event and the control were smaller. Finally, in the remainder of the country, there were only slightly more calls following the event than during the control period.[7]

Hebron

At 19:13 on Friday, November 11, 2002, Jewish worshippers returning from Sabbath eve prayers at the Tomb of the Patriarchs (a site holy to both Jews and Moslems) were ambushed by three Palestinians. Israeli soldiers stationed nearby intervened and a gun battle ensued. Twelve Israelis were killed in this event, nine soldiers and three civilians.

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Figure 2 about here

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As Figure 2 indicates, the pattern of calls was somewhat similar to that of the Jerusalem incident. However, given the fact that the event took place on a Friday

[7] It should be noted that in some of the cases, mainly for the "rest of the country", the number of completed calls exceeded that of the number of attempted calls. While this may seem paradoxical, it is an artifact due to the way the calls are recorded by the company computer, resulting from the fact that calls are recorded by cell. Hence when a caller is moving (e.g., in a car) while speaking, the call would be recorded more than once as the signal is transferred to an adjacent cell.

evening when most of the orthodox residents of the Jewish quarter of Hebron do not use their phones on the Sabbath, the gap between the event and the control in the immediate zone as well as in the 2-10 km zone was only about twofold. Furthermore, given this particular nature of the Hebron community, it was unlikely that people elsewhere would be concerned that their loved ones might just happen to be in Hebron on a Friday evening, hence the fewer calls. In the remainder of the country, as in the case of Jerusalem incident, there was virtually no difference between the event and the control periods. The slightly greater gap during the 21:00-22:00 time slot may have been due to calls made following the nightly television news programs that were aired between 21:00-22:00 that provided live coverage of the event.

Battle in Jenin

Following a series of suicide bombings in March 2002, the Israeli army launched several attacks on Palestinian positions and suspected terrorists. On April 4th, during a battle in the Jenin refugee camp, several Palestinians ambushed and killed 13 Israeli soldiers. While this was not a terrorist attack *per se*, the battle raged for several hours and rumors began spreading throughout Israel as to numerous casualties on both sides. The military spokesman made the official announcement only late in the day.

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Figure 3 about here

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The call patterns in this case (see Figure 3) differed from the two previous ones. While there were no *Cellcom* antennae in the 0-2 km zone, the other two zones, showed consistent gaps between the event and the control period. Moreover, while in the two previous events the gaps narrowed during the five-hour period following the

event, in the current case the gaps expanded due to the increasing rumors being spread around.

## Discussion

This study clearly indicates that following a grave emergency the use of mobile phones skyrockets. While people do seem to have emergency situations in mind when they purchase a mobile, fortunately such situations do not arise all that often. But when they do, as this case has demonstrated at a national level, the mobile becomes a significant means of coping with the situation. This is probably the case because of the mobile's ability to operate from virtually anywhere and in real time.[8] Moreover, such circumstances, perhaps the ultimate emergency – life threatening, chaotic, shocking – provide an opportunity to push our understanding of the mobile to its utmost, when the individual person *per se* becomes the destination rather than a physical place, as is the case with the fixed phone.

The Israeli data indicate that the relatively highest use of the mobiles occurred in the regions closest to the location of the terror attacks while in the regions further away the phenomenon is not pronounced. This was the case for the three events presented in this paper as well as for the others that were examined. This is probably due to the fact that most of the people who express concern are those who reside or work in close proximity to the attacks or those who are concerned for them.

An interesting question is what would data from earlier periods indicate? We suggest that it is quite likely that even more dramatic differences would be found, possibly even extending to greater distances. A possible assumption is that over time there has developed a certain amount of desensitization regarding terror attacks. Alternatively, it may be that in recent years as people have been purchasing more

[8] It should be noted that sometimes the mobile systems "crash" for a brief period shortly after major catastrophes.

mobiles – with many families owning more than one device, as the data at the outset indicate – they have learned to manage and maximize their use of the mobile when such emergencies occur. In other words, people may have become more thoughtful and less haphazard in their reactions to terror attacks.

Finally, a word about media coverage of mobiles and terror attacks. In recent years, mobile phones have become quite salient in such reports – in headlines, photos, human-interest stories, and even in obituaries (Cohen & Lemish, 2004b). The use of the mobile has become part and parcel along with gory and graphic descriptions of pandemonium, burnt busses, bleeding people, and people searching for their loved ones. There seems to be no doubt that the placing of the mobile phone within this context is related to the widespread notion that it has become such an important medium of communication in emergencies in general and in dealing with terror in particular.

Figure 1

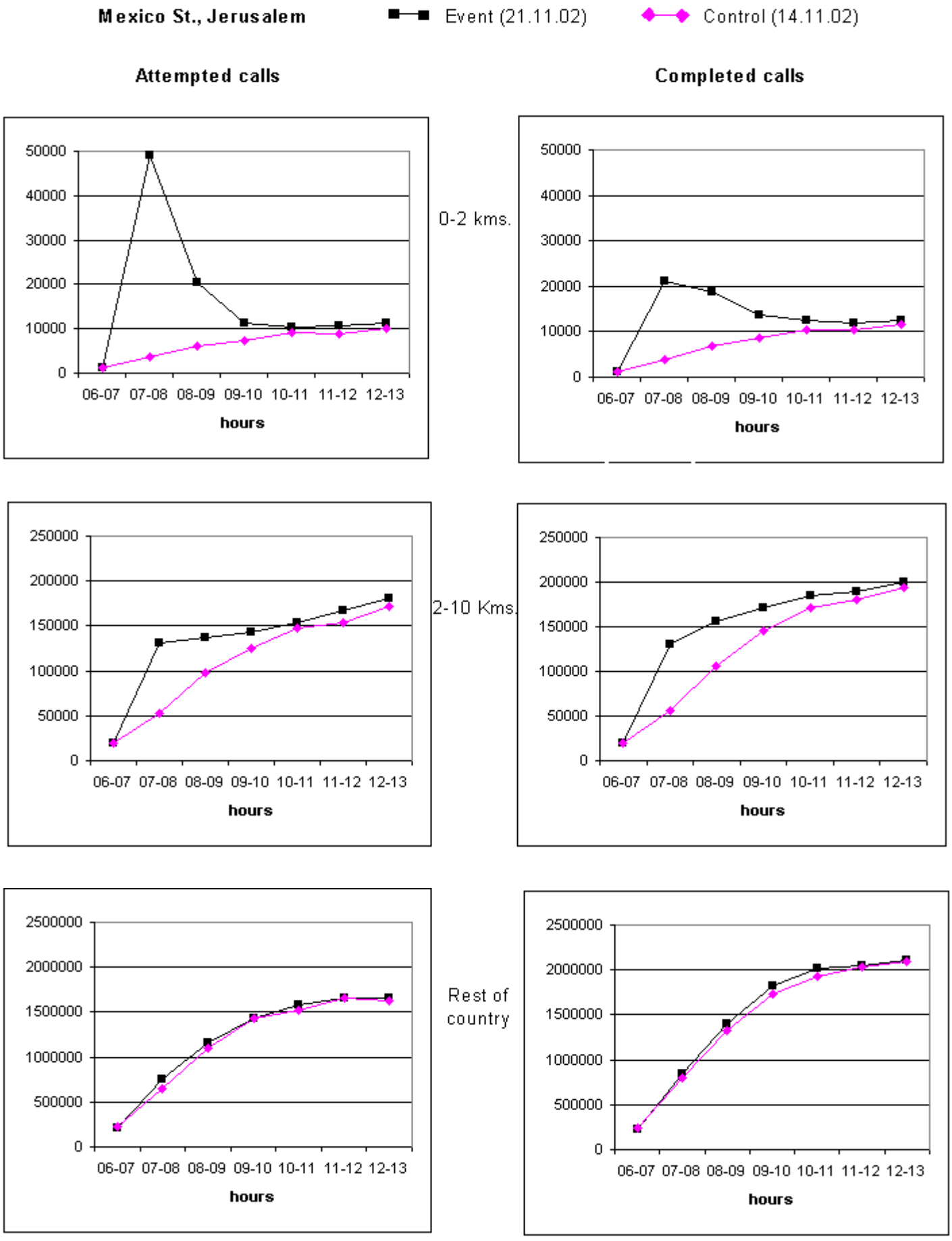

Mexico St., Jerusalem
Event (21.11.02)
Control (14.11.02)
Attempted calls
Completed calls
0-2 kms.
2-10 Kms.
Rest of country
50000
40000
30000
20000
10000
0
250000
200000
150000
100000
50000
2500000
2000000
1500000
1000000
500000
06-07 07-08 08-09 09-10 10-11 11-12 12-13
hours

Figure 2

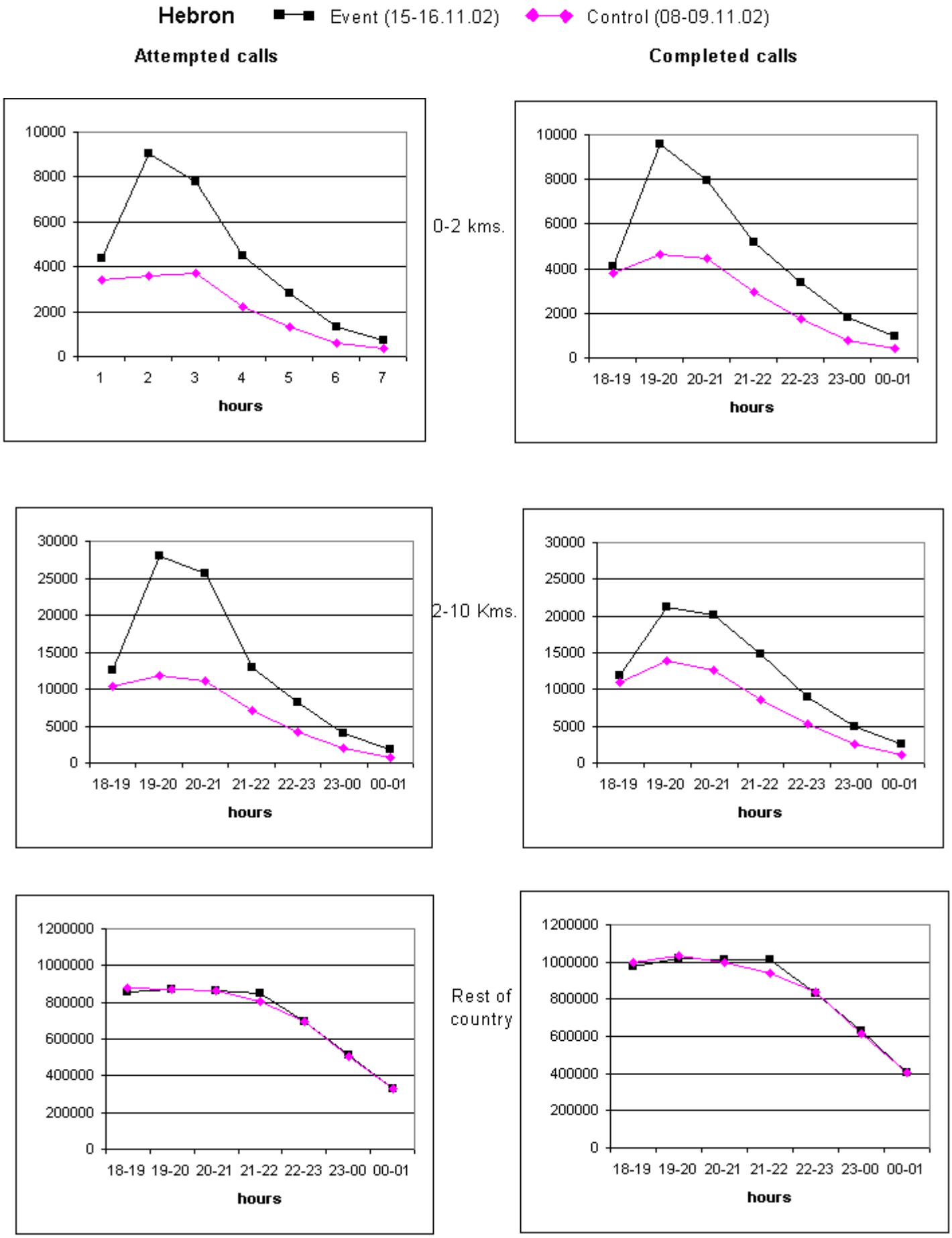
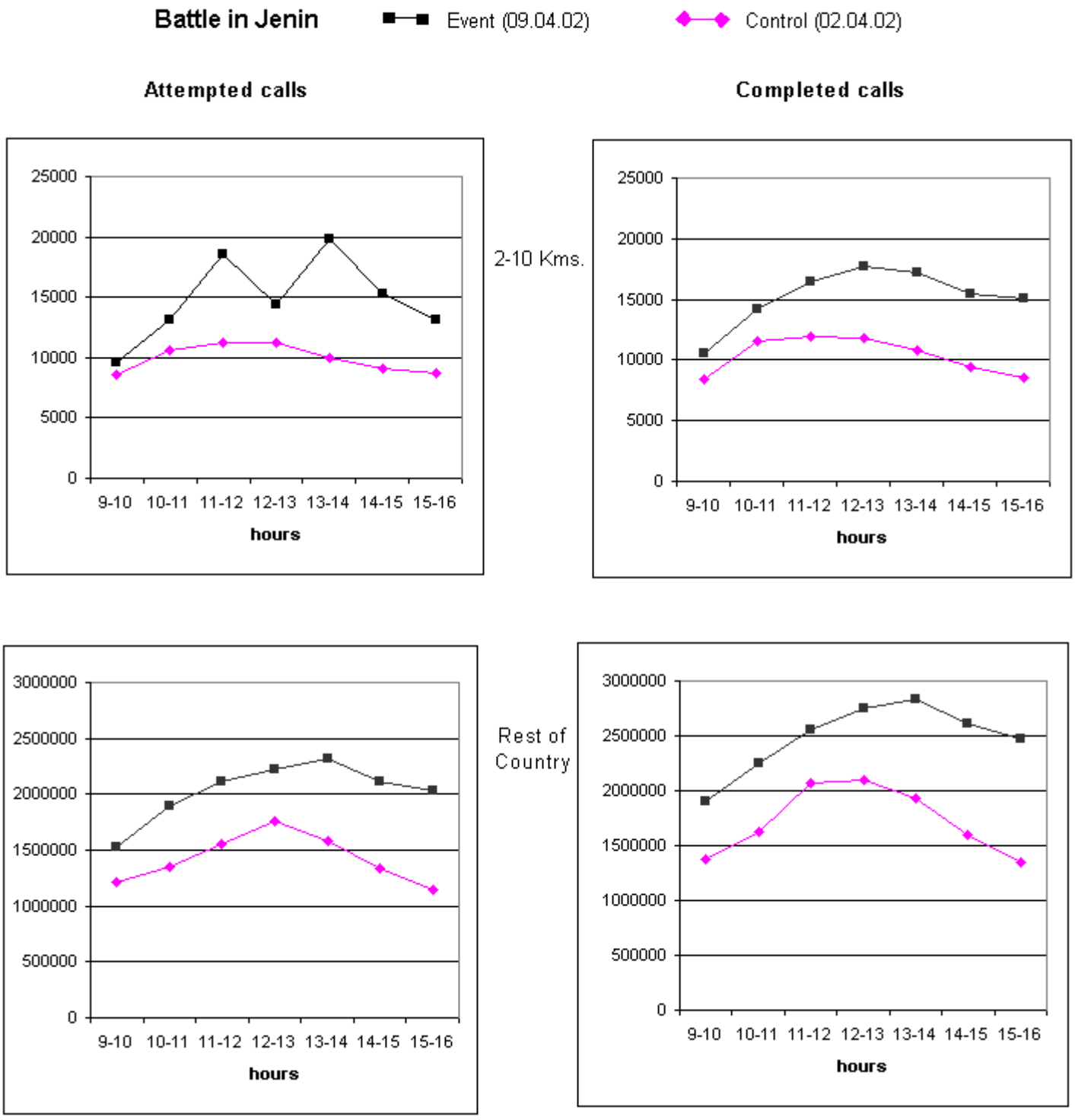

Hebron
Event (15-16.11.02)
Control (08-09.11.02)
Attempted calls
Completed calls
0-2 kms.
2-10 Kms.
Rest of country
hours
18-19 19-20 20-21 21-22 22-23 23-00 00-01
1 2 3 4 5 6 7

Figure 3


Battle in Jenin
Event (09.04.02)
Control (02.04.02)
Attempted calls
Completed calls
2-10 Kms.
Rest of Country
25000
20000
15000
10000
5000
0
3000000
2500000
2000000
1500000
1000000
500000
9-10
10-11
11-12
12-13
13-14
14-15
15-16
hours

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