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PROMILE: Making a E-Health Real

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Healthcare IT is not entirely a creature of the hospital environment. Indeed, there has long been a great deal of emphasis on preventive health, and IT can indeed be deployed imaginatively to prevent people becoming hospital patients. The Promile system from the Czech Republic provides an excellent example of such a use. It is essentially an SMS service available since 2005 across the entirely mobile telephony network of the country. Its purpose is to combat excessive drinking and dangerous driving – an issue of considerable concern in Europe, where about a quarter of deaths from traffic accidents are related to alcohol abuse. Alongside, Promile has also yielded a rich amount of data on alcohol use profiles and patterns, which will be of evident benefit to healthcare researchers.

Background

Promile is based on cognitive therapy, which supports small steps in monitoring a person's behaviour, reinforced by practical tips on how to stay in control (and not break social mores or laws).

The goal of Promile is to prevent drunk driving and provide assistance during (self) treatment to control drinking. The Promile SMS system works on both GSM and WAP protocols, providing an anonymous and socially invisible manner for self-regulating alcohol consumption. Promile has been actively promoted in night-life settings (clubs, bars, restaurants, music festivals), and is widely considered to have achieved its goals.

A Promile SMS contains the following information, in a simple step-by-step sequence: sex, age, weight (which are templated), the hour when a customer started drinking, the number and type of beverage (coded at the Promile Website, or automatically accessed by WAP).

The response, providing information about the present blood alcohol content (BAC) and approximate time when the alcohol level will have dropped to zero, is received within a minute. The response also includes a brief summary about any specific risks associated with the reported alcohol content.

Results

Between its launch in September 2005 and July 2008, Promile was queried 31,383 times. More than half this activity occurred before the end of 2005 (during its first four months in operation). An equivalent intensity of use was recorded only once more, in July 2006.

Overall, the service was ordered from 12,624 phone numbers: 67% of customers used the service once, nearly a third repeatedly. 17% of Profile customers had their BAC checked twice, and ten or more queries were sent from 1.4% of numbers. Three phone numbers were used for over 100 messages each, while one was used for a record 640 message. Rather than hinting at incipient Promilitis, the real reason is believed to be that more than one person uses the same phone number, thus substantiating a higher level of individual users.

The waning in use after the first months of the Profile SMS service operation can be attributed to a limited level of promotion during the following months. At the end of 2005, the service was promoted using printed material and beer mats, but thereafter the service functioned without any serious advertisement at all.

Of Bugs and Blips

Like any IT system, the Promile SMS service had its share of alerts and howlers. 11% of messages contained values of alcohol consumed in excess of fatal doses. Others had an unlikely date for the beginning of the consumption of alcohol.

Such messages may, in reality, be considered as tests (by customers to see if the service works) - or as practical jokes. In order to avoid bias in average alcohol consumption and BAC data, all such cases were excluded.

User Profiles

The Promile service is mostly used by men (about 80% of queries). The average age of all customers is 33.4 years, with a negligible difference in the latter in terms of gender. Under- age customers (below 18) represent 1.5% of all users, while 3% were above 60.

Promile SMS service users consumed an average of 111 grams of alcohol per session. The average quantity of alcohol consumed by men was 118 g, and 84 g by women. The most typical quantity of alcohol consumed during one occasion was 40 g (corresponding to approximately one litre of beer).

Indeed, the bulk of customers (68%) stick to one type of a beverage, just under 29% combine two types while the remainder combine over two types of alcohol.

One additional finding from the Promile service (of potential epidemiological value for healthcare researchers) is the weight profile of customers: 67 kg for women on average and 86 kg for men, with the average weight increasing with age until 40, and then stabilizing at 85-89 kg (though 11% of people in the sample weighed 100 kg or more).

Alcohol Consumption Patterns

Excluding the above-fatal dose levels mentioned previously, BAC levels varied from 0-6%.

The average BAC level was 0.79% - by gender, 0.73% for women and 0.81% for men.

It is interesting to note that average BAC levels decreased with age, with the highest values (1.18%) reported by those aged under 18. This fact may be associated with the practical joke/test messages, but a more likely explanation is irresponsible drinking among those under age.

A quarter (26%) of the customers ordered the Promile SMS service in morning hours (between 6 am and noon), more than half (51%) between noon and midnight. The highest number of queries were invariably during the last three hours of a day.

Indeed, most Promile customers (52%) started consuming alcohol between 6 pm and midnight, with (38%) doing so between 6 pm and 9 pm. The problematic users (with a 14.2% share) were those who started drinking before noon, between 6 and 12 a.m.

At the time of sending the SMS, 35.8% (or more than a third) had zero alcohol in the blood. Based on further analysis, we found that such customers tended to largely seek information in the morning (as compared to customers with a higher BAC who queried Profile at later hours).

As a result, we believe this involves a group of people who use Promile to check on their BAC on the second day after drinking – for example, to see if they can drive a car , without any risks.

Yet another interesting finding was a correlation between consumption levels and weekly cycles. Promile customers consuming the most alcohol were those who begin drinking on Wednesdays, Fridays and Saturdays; those who drink on Tuesdays reported the lowest quantity of alcohol consumed.

Conclusion

As mentioned previously, it is possible that a tapering in use of Promile may due to limited promotion in the following months.

However, it is also likely that the drop in interest may simply be due to the effectiveness of the Promile service itself: drinkers who often consume similar quantities of alcohol get a rough idea of how long it takes before they sober up, and so do not need to query the system again.

In addition, if the goal of the Promile project involved providing a tool to enable users to check their BAC level and determine when it was possible to sit down safely behind a wheel again, then it is obvious that this has been met successfully.

The final indicators involve a high proportion of customers with a zero BAC, who seek the Promile SMS service more commonly in morning hours before noon, and alongside, a high proportion of users checking blood alcohol during the consumption of drinks.

In brief, the Promile service is likely to have acquired a regular base of customers. If its capacity is, however, to be utilised fully, it may be useful to promote it more forcefully in a systematic and long-term manner – both in the Czech Republic and beyond.

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