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# MOBILE PHONE TEXT MESSAGING FOR PHARMACEUTICAL CARE IN SAUDI ARABIA: A PILOT STUDY

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**ABSTRACT**

So far, there has been no published study assessing mobile phone text messaging for pharmaceutical care in the Saudi Arabia. Therefore, we designed and conducted a pilot study to measure the patient acceptance rate of using their personal mobile phone to receive pharmaceutical care in the country. This 6-week pilot study was conducted at King Khalid University Hospital (KKUH) in Riyadh, Saudi Arabia. A short pilot study questionnaire in Arabic language was structured to gather information about benefiting patients. This questionnaire consisted of several items including demographic information. Among the 250 participants 40.8% were males and 59.2% were females. Arabic (87.2 %) was the preferred language of the text messages for the participants. The majority (74%) of participants had never used a mobile phone in healthcare previously. Agreement with the sharing of mobile number (72%) to the pharmaceutical service department and using the service (91.2%) and acceptance of idea of messaging system (97.2%) remained high throughout the study. Among the expected information, we have found that the most of the participants (98.7%) are looking for the information about the medicine, such as proper dose, the treatment duration, the proper way to use the medicine, and the possible side effect. This study illustrates that the participants were happy with the idea of using their mobiles in the pharmaceutical care. The acceptability of a text messaging system would be worth exploring in future research especially with the chronic diseases intervention, primary care services, medication dispensing and refill, patient education, smoking cessation program and in the elderly population.

**Keywords:** Mobile phone, text messaging and pharmaceutical care.

## INTRODUCTION

As technology improves every day, new developments are frequently infiltrating our lives. Health care providers should make use of the latest technology in patient care to improve their services and to evade human errors. Properly used technologies can improve data collection, manage information, and, ideally, improve the overall quality of patient care. In the pharmaceutical care, the use of new technologies to reduce the number and severity of medication errors has been endorsed, and in some cases, mandated (1-5). Furthermore, mobile technology has the potential to be used in healthcare systems as the numbers of mobile phone users are rapidly expanding. About 4.5 billion mobile phone subscribers are expected worldwide by 2012 (6). In Saudi Arabia, as in many other countries, the mobile phone is a popular means of communication. There were over 54.5 million mobile phone consumer at the end of June 2012 (7).

There are many reports of the use of the mobile phone short message service (SMS) in patient care. For example, the results of a study conducted by da

Costa et al., show that SMS messages can help Brazilian women living with HIV/AIDS to remain adherent to antiretroviral therapy (8). In another study conducted by Lester et al., in Kenya reported that patients who received SMS support had significantly improved antiretroviral therapy (ART) adherence and conclude that mobile phones might be effective tools to improve patient outcome in resource-limited settings (9). In China, Mao et al., found that the use of mobile pharmacy service system (MPSS) should improve pharmaceutical care, reduce the burden on pharmacy staff, and improve pharmacist–patient interaction (10). Joo et al., used mobile phones to deliver short messages about diet, exercise and behavior modification and found that SMS messaging may be an effective method of behavior modification in weight control and anti-obesity health education programmes (11). Also, text messaging reminder was effective in improving attendance rate in primary care compared with a non reminder control (12). In addition, other studies, used mobile phone text messaging services in clinical care of patients included asthma (13), diabetes mellitus (14, 15), travelers vaccination (16) and smoking cessation (17).

Although telemedicine has existed in Saudi Arabia since 1993 (18). So far, there has been no published study assessing mobile phone text messaging for pharmaceutical care in the country. Therefore, we designed and conducted a pilot study to measure the patient acceptance rate of using their personal mobile phone to receive pharmaceutical care in the Saudi Arabia.

## METHODS

This 6-week pilot study was conducted at King Khalid University Hospital (KKUH) in Riyadh, Saudi Arabia. A short pilot study questionnaire in Arabic language was structured to gather information about benefiting patients. This questionnaire consisted of several items including demographic information (such as gender, education level,) the preferred language, previous use of mobile phone, agreement to give mobile number to the pharmaceutical service department, agreement to using the service, acceptance of the idea and expected pharmaceutical information needed by patients. Data were entered into Predictive Analytics Software (PASW) Advanced Statistics version 18 (formerly called SPSS Advance Statistics, SPSS Inc., Chicago, Illinois) licensed for King Saud University. The study was approved by King Saud University College of Medicine Research Ethics Committee.

Text messages were phrased as a statement [e.g., Hi (patient's name). Here's your treatment team want to remind you that the dose of (medicine's name) is (dose) to be taken (no. of doses) daily] and [Hi (patient's name). Here's your treatment team want to remind you that if you experienced (side effect), don't worry. It's caused by the medicine. Inform us if you experienced something else].

## RESULTS

Among the 250 participants 40.8% were males and 59.2% were females. Arabic (87.2 %) was the preferred language of the text messages for the participants. The majority (74%) of participants had never used a mobile phone in healthcare previously. Agreement with the sharing of mobile number (72%) to the pharmaceutical service department and using the service (91.2%) and acceptance of idea of messaging system (97.2%) remained high throughout the study (Table 1). Among the expected information, we have found that the most of the participants (98.7%) are looking for the information about the medicine, such as proper dose, the treatment duration, the proper way to use the medicine, and the possible side effect.

## DISCUSSION

Since their invention mobile phones have played an active role in medicine. Text messaging through short messaging service (SMS) is a common and convenient way of communication and coordination and has the potential to reach a large number of individuals at a relatively low cost. To our knowledge, this is the first study to examine the acceptance rate of using mobile phone to receive pharmaceutical care in Saudi Arabia. The present study indicates that the use of mobile phone text messaging in pharmaceutical care is feasible and has clinical utility as a greater part of the respondents were in agreement to use the service and were happy with the idea of using their mobiles in the pharmaceutical care. Participants reported that the most appealing aspects of the text messages would be the medication use reminders that helped them to improve their medication adherence. Furthermore, the healthcare system is beginning to test and apply such technology in different ways in order to improve patient care (19-22). Similarly, Dyer in 2003 reported the use of mobile phones for sending a text message to patients in order to remind them of upcoming appointments with their doctor (23). Mao et al in 2008 reported effective use of mobile phone text messaging for pharmaceutical care in a hospital in China (10). Leong *et al* showed that both telephone reminders and text messaging reminders significantly reduced non-attendance rates in seven

primary care clinics, when compared to no reminder (12).

The results of this study must be considered in the context of the study design. Because the population of survey respondents was self-selected, this may limit the ability to generalize these findings to a larger population. In addition, it was not conducted on the group of patients receiving specific treatment and the number of participants was small. Thus, it is not possible to conclude which type of patients will benefit most from mobile phone text messaging.

## CONCLUSIONS

This study illustrates that the participants were happy with the idea of using their mobiles in the pharmaceutical care. The acceptability of a text messaging system would be worth exploring in future research especially with the chronic diseases intervention, primary care services, medication dispensing and refill, patient education, smoking cessation program and in the elderly population.

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**Table 1: General characteristics of respondents**

| Characteristics | Number (n=250) | Proportion |
|---|---|---|
| **Gender** | | |
| *Male* | 102 | 40.8% |
| *Female* | 148 | 59.2% |
| **Education level** | | |
| Graduate | 138 | 55.2% |
| High school | 70 | 28% |
| Other | 42 | 16.8% |
| **Previous use of the mobile in healthcare** | | |
| Yes | 65 | 26% |
| No | 185 | 74% |
| **The preferred language** | | |
| Arabic | 218 | 87.2% |
| English | 32 | 12.8% |
| **Agreement to give mobile number to the pharmaceutical service department** | | |
| Yes | 180 | 72% |
| No | 10 | 4% |
| At necessary | 60 | 24% |
| **Agreement to using the service** | | |
| Yes | 228 | 91.2% |
| No | 3 | 1.2% |
| Sometimes | 19 | 7.6% |
| **Acceptance of the idea** | | |
| Yes | 243 | 97.2% |
| No | 7 | 2.8% |

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