

# **Pharmacists' Role in Adjusting Medication Regiments for Muslim Patients in Ramadan**

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## ABSTRACT

Ramadan is the ninth month of the Islamic lunar calendar, and lasts 29 or 30 days. Fasting during Ramadan is one of Islam's five basic pillars. For one month, Muslims are expected to fast, every day from dawn to sunset while abstaining from food and drink. Ramadan fasting is incompatible with the use of oral dosage forms of medications, the most common and convenient dosage forms for patients. Although patients may be aware of their religious exemption from fasting, many still choose to fast.

Pharmacists have a significant potential to identify and prevent harm from medication misuse in Ramadan. This dissertation examines Egyptian community pharmacists' role in patient care during Ramadan. The goal is to enhance pharmacists' ability to provide proper care for patients who plan to fast by helping them transition safely in and out of Ramadan.

Using a cross-sectional descriptive survey design, 363 pharmacies were randomly selected from a list of community pharmacies in the Alexandria governorate. Two hundred and ninety eight pharmacists working in selected pharmacies were present in their respective pharmacies. For each pharmacist Medication Regimen Adjustment (MRA) during Ramadan was measured using four items. Each item identified the percentage of patients for whom pharmacists reported performing a medication regimen adjustment element including the frequency of taking medication, dose, dosage form, and the medication itself. To construct the dependent measure for MRA, the four percentages reported by pharmacists were averaged. This average served as an overall indicator of the total array of MRA elements performed by pharmacists to assist patients.

Using standard cognitive interviewing techniques, the Arabic version of the instrument was tested on six Egyptian community pharmacists. This was followed by a more comprehensive pretest for the instrument on 17 Egyptian community pharmacists.

After cognitive testing and pretesting, data were collected through a self-administered survey distributed by a team of three data collectors. To ensure an adequate response rate, a data collector visited each pharmacy on the list and asked pharmacists to fill the survey forms.

Data were analyzed using STATA (Version 12). The characteristics of the sample and the dependent variable's distribution were analyzed with descriptive statistics. Multiple linear regression was used to explore the most predictive factors for pharmacists' MRA behavior.

Two hundred seventy seven (92.9%) of the 298 approached pharmacists agreed to participate. The majority (84.8%) of the respondents were Muslim, and 68.2 % were male. Findings are presented in three sections:

The first section presents the utility of the Theory of Planned Behavior (TPB) model in predicting community pharmacists' MRA behavior for patients during Ramadan. While 94.2% reported performing one or more kinds of medication regimen adjustment around Ramadan for at least one patient, the majority of pharmacists performed MRA only for a small percentage of patients. The most common MRA behavior that pharmacists performed to accommodate fasting was changing the frequency of taking the medication followed by changing the dose of the medication. This was followed by changing the dosage form of the medication and finally changing the medication itself. Patient social pressure (PSP), perceived patient benefit (PPB) and perceived behavioral capability (PBC) were all significant predictors of MRA and together accounted for 31.8% of the variance in MRA ( $P < 0.0001$ ). Statistically significant predictors of MRA in the final model included PSP ( $\beta = 0.274$ ,  $P < 0.001$ ), PBC ( $\beta = 0.217$ ,  $P < 0.001$ ), PPB ( $\beta =$

0.207,  $P=0.001$ ), initiating communication ( $\beta=0.167$ ,  $P=0.001$ ) and the number of working hours ( $\beta=0.145$ ,  $P=0.005$ ).

The second section examined Egyptian pharmacists' knowledge regarding management of diabetes during Ramadan as well as their willingness to attend a one day workshop on the adjustment of medication regimens for patients in Ramadan. Forty three pharmacists (15.9%) did not know the correct answer to any question, 118(43.7%) answered one correctly, 86 (31.9%) answered two correctly and only 23 (8.5%) answered all three correctly. One hundred seventy five (63.6%) pharmacists wanted to attend a one day workshop on the adjustment of medication regimens in Ramadan. This was significantly associated with pharmacists being Muslim (OR=3.52, CI=1.70-7.27) and of younger age (OR = 0.98, CI = 0.96-0.99978). Pharmacists offered specific content and communication process suggestions for future training.

Finally, the third section explored pharmacist-patient communication about medication regimen adjustment during Ramadan. Results indicated that only 16% of the pharmacists reported that they themselves initiated the conversation on medication regimen adjustment in all or most cases. Eighty percent of the pharmacists reported that the conversation on medication regimen adjustment started either one to three days before, or during the first week of Ramadan for patients with chronic conditions. Only five percent of pharmacists intervened less during Ramadan while the majority (69%) intervened more during Ramadan. More pharmacists intervened more with acute conditions (41%) as compared to chronic conditions (19%) with 33% reporting an equal rate of intervention in acute and chronic conditions. More than three in four pharmacists reported that 60% or more of their patients with chronic conditions decided to fast in Ramadan.