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# The Use of Medicines in Oman
## Public Knowledge, Attitudes and Practices

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# استعمال الأدوية في عمان
## معرفة ومواقف وممارسات المجتمع

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**الملخص: الهدف:** التعرف على مشاكل استعمال الأدوية الشائعة في عمان وذلك من أجل تحسين وترشيد استعمالها. **الطريقة:** أجريت هذه الدراسة الارتيادية المقطعية باستخدام استبيان مكتوب تم تعبئته من قبل 6675 مريضا عمانيا خلال ترددهم على المراكز الصحية الأولية. **النتائج:** 66 % من المراجعين زاروا أكثر من مركز صحي في نفس الوقت لنفس المرض. و51 % لا يعودون إلى نفس المرفق الصحي للمتابعة. كما أن 39 % لا يقبلون العلاج بدون أدوية وأن 30 % من المراجعين يفضلون ثلاثة أدوية أو أكثر عند كل زيارة. كثير من المرضى لا يسألون الطبيب عن كيفية اخذ العلاج وتوقيته ولا عن مكان تخزينه في المنزل . كما انهم لا يذكرون أسماء الأدوية التي يستخدمونها. 70 % من المراجعين يتوقفون عن استعمال أدويتهم عند اختفاء الأعراض. تبين أن 62 % من المراجعين ليست لديهم معرفة بأن للأدوية تأثيرات جانبية وأن 61 % لا يعرفون أن الحقن أكثر خطورة من حيث الجرعة. 54 % منهم يفضلون لون وطعم محدد للدواء بينما يقوم 43 % منهم بالمداواة الذاتية و68 % لا يستشيروا الصيدلي. يختار 36 % من المراجعين الأدوية التي جربوها و33 % يتبادلون الأدوية فيما بينهم . يخزن 55 % من المرضى كافة الأدوية في الثلاجة و17 % منهم لا يتأكدون من تاريخ نفاد صلاحية الدواء. 45 % يرموا الأدوية غير المستعملة و41 % يحتفظوا بها للمستقبل و16 % يعيدوها للصيدلية أو المركز الصحي. **الخلاصة:** تبين أن هناك نقصا في المعرفة لدى الناس حول الاستخدام الرشيد والأمثل للدواء. بعض المواقف والمعتقدات يمكن أن تؤدي إلى أخطار صحية وهدر مالي غير مبرر. الكثير من هذه النتائج يمكن تحسينها بواسطة حملة توعوية صحية جماهيرية ذات أهداف محددة.

**مفتاح الكلمات:** بالغ . معرفة ومواقف وممارسات صحية . استبيان . مستحضرات صيدلانية . عُمان

**ABSTRACT:** ***Objectives:*** The objective of this study was to identify the common problems of medicine use in Oman in order to improve the appropriate use of medicines. ***Methods:*** A cross-sectional, pilot-tested questionnaire was administered to 6,675 Omani patients or their carers on exit from primary health care centres. ***Results:*** 66% of respondents visited multiple facilities on the same date for the same complaint and 51% failed to go for follow up to the same facility. 39% did not accept non-drug therapy and 30% preferred prescription of 3 or more medicines per visit. Many failed to ask how or when to take the medicines, where to store them at home and did not mention any current therapies they were taking. A total of 70% stopped taking their medicines when symptoms disappeared; 26% were unaware that most medicines have side-effects and 61% did not realise that injections are the riskiest dosage form. A total of 54% had definite colour and taste preferences; 43% practised self-medication and 68% never consulted the dispenser; 36% chose medicines based on previous experience and 33% exchanged medicines with others; 55% stored all their medicines in a fridge and 17% did not check the expiry date; 45% threw unused medicines away; 41% kept them for future use and only 12% returned them to a pharmacy or health facility. ***Conclusions:*** There is a widespread lack of knowledge about the appropriate use of medicines in Oman. Certain attitudes and beliefs can contribute to health risks and unnecessary expenditure. Many of these results could be improved by a well-targeted public education campaign.

***Keywords:*** Adult; Health knowledge, attitudes and practice; Questionnaires; Pharmaceutical preparations; Oman.

**ADVANCES IN KNOWLEDGE**

1. *This is the first study in Oman to assess the knowledge, attitudes and current practices of patients towards medicine seeking and using behaviour.*
2. *The results of this study will help to provide a strong platform for future regional and national interventions to improve the use of medicines and to reduce wastage.*

**APPLICATION TO PATIENT CARE**

1. *Omani patients need to be given more information about their medication by their health providers.*
2. *Omani patients need to be encouraged to ask health workers more questions about their medication.*
3. *A public education campaign on the rational use of medicines (RUM) should be conducted at the national level*
4. *The knowledge obtained from this survey will serve as a base for preparing local public educational materials and help in promoting public education in the appropriate use of medicines in Oman.*

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In the year 2000, Oman was the first country in the world to establish a national body dedicated to the rational use of medicines (RUM). The Oman National Drug Policy (ONDP), also formulated in 2000, contains guidelines for the rational use of medicines by both health care providers and the public.[1,2] While RUM by health providers has received high priority, investigations of medicine use in the community and public education have received very little attention and have often not been allocated the necessary human and financial resources. Although health care providers play an important role in the use of medicines, patients are equally important. Public knowledge, attitudes and perceptions (KAP) regarding the use of medicines influences the decision to seek health care, the choice of care provider, the use of medicines and, ultimately, the success of treatment. As defined by the WHO, RUM means that patients receive medications appropriate to their clinical needs, in doses that meet their individual requirements, for an adequate period of time, and at the lowest cost to them and their community.[3]

In Oman, health care and medicines are free at source in all Ministry of Health facilities for Omanis and for expatriates working for the government. Everyone pays a nominal fee of one Omani rial (OR) to register at a facility of their choice annually, plus there is a token fee of 200 baizas per visit (1 OR = 1,000 baizas = $2.60). Very few studies have documented KAP on medicine use problems in the community in Oman and other Gulf countries;[4,5] therefore, research studies into medicine use in the community should be conducted as a priority and used in the development and implementation of community-based regional and national interventions to improve the appropriate use of medicines by the population. The World Health Organisation (WHO) produced a guide on how to investigate the use of medicines by consumers.[6] This guide is intended to provide researchers, administrators of health programmes and health workers with simple research methods to identify problems in the provision and use of drugs at the community level of health care. The aim of this study was to assess the knowledge, attitude and practice of patients about medication use in order to identify the common problems in the community. The results should provide the focus for an effective public education campaign to improve medicine use and increase public awareness about certain irrational practices.

## Methodology

A baseline survey was conducted in the 10 health regions of Oman during the year 2006-2007. A written questionnaire in Arabic was designed, field tested, revised and finalised (see Table 1 for English translation). The pilot study tested the questionnaire for reliability, comprehension, question design and length. The questionnaire, composed entirely of closed questions, covered the following aspects: a) characteristics of the respondents; b) patient visits to health facilities and drug therapy; c) patient-health care provider communication; d) patient adherence and perception; e) self-medication; f) storage, expiry date and disposal of unused medicines.

Respondents from each of the selected 75 public primary health care facilities from 10 different health regions, including urban and rural areas, were selected by random sampling and interviewed (approximately 100 per facility). The total number of collected questionnaires was 6,675, representing an estimated 26% of the daily visits to those public (government) primary health care facilities. The respondents included the patients who visited the studied health facilities or their carers who accompanied them in the case of the elderly or disabled patients. The study method was essentially a structured interview using the described questionnaire. Respondents were interviewed as they left the out-patient clinics, i.e. at the patient exit and they were allowed to ask for clarification.

The answers obtained were filled immediately into the questionnaire forms by the research assistants who were mainly health educators, assistant pharmacists and nurses. All researchers were pre-trained, involved in the pilot test and given written guidelines to conduct the survey properly. Field supervisors and data collectors from the 10 health regions received training in order to standardise the procedures, ensure proper handling of the questionnaire and understanding of its contents. Any weaknesses found were addressed before the full study started. The data were processed and analysed, by use of the Statistical Package for Social Sciences (SPSS Version 10, SPSS Inc.), for each health region and for the country as a whole. The mean percentage results, representing

the whole country, were used in analysing the data.

The Ministry of Health and the health services in all health regions were informed before the study began. All respondents were assured of anonymity and informed that only aggregate data would be reported and that they were free to refuse to participate at any time.

## Results

The majority of the respondents were female (63%), young adults from 15 to 30 years old (59%) and either uneducated or with only general education (12 years of instruction) (78%).

Table 2 shows the results of the survey. A high percent of the respondents (66%) mentioned that they visited more than one health facility on the same day for the treatment of the same ailment. About half (51%) said they did not return for follow-up to the same health facility if they did not feel better within the time they expected. More than one third (39%) stated they would not accept it if only advice and assurance were given and if no medicines were prescribed for them. About one third (30%) reported that they preferred to have three or more drugs prescribed per consultation.

Almost a quarter of respondents (26%) said they did not inform the prescriber or the dispenser about the medicines they were already using, including any traditional medicines. A few respondents said that they did not ask the prescriber or the dispenser to explain about the prescribed medicines, particularly how (18%) and when (12%) to take the medicines i.e. before or after food. Just under half (43%) of those surveyed reported that they did not ask and were not told how to store their medicines properly at home. More than one third (34%) reported that they did not ask the prescriber or dispenser about any possible side effects of the prescribed and dispensed medicines.

More than two thirds (70%) of the respondents said they discontinued their treatment course when they felt that the symptoms disappeared or if they felt better. Almost one quarter (26%) of those surveyed reported that they did not know that all medicines have side effects which could influence their compliance. About two-thirds (61%) reported that they did not know that injections are the riskiest dosage form and 14% said they preferred to take their medicines in injectable form. More than half (54%) of those surveyed reported that their acceptance was influenced by the colour and/or taste of the medicine.

Just under half of respondents (43%) mentioned that they practised self-medication, while approximately one third (32%) of them consulted and sought help from dispensers in choosing the appropriate treatment. More than one third (36%) said they chose their medicines on the basis of previous experience, i.e. a trial and error process. One third (33%) admitted to sharing or exchanging medicines with others.

More than half (55%) of the respondents said they stored all medicines at home in a fridge and about one fifth (17%) admitted to using medicines without checking their expiry dates. Almost half (45%) said they discarded prescribed medicines after use in the waste bin. About two-fifths (41%) kept any left-over medicines for future use by themselves or others, but a small number (12%) reported that they return the unused medicines to a pharmacy or health facility.

## Discussion

### Patients' visits to health facilities and drug therapy

Although Omani patients have the right to seek treatment anywhere they choose, they are not encouraged to visit more than one governmental health facility for the treatment of the same illness on the same day. They should preferably return to the same health facility if there is no improvement in their symptoms within a time agreed with the doctor. If follow-up is necessary, they should avoid going to another facility or switching doctors or going to traditional healers or taking self-medication for the same condition. An exception, perhaps, would be if a patient felt strongly about the need for a second opinion for an intractable condition. Patients should not believe in 'a pill for every ill' and should accept non-medicine therapy when only advice and assurance are decided on by the provider and not insist on polypharmacy. Omani residents receive health care, including the provision of prescription medication from governmental health facilities, free of charge. One of the problems associated with the provision of free medications, in certain countries, is frequent switching by the patient from one

**Table 1:** Questionnaire for survey of public knowledge, attitudes and practices towards use of medications

**A. Personal data**

| | |
|---|---|
| 1 | Sex: male ○ Female ○ |
| 2 | Age: 15 - 30 ○ > 30 - 40 ○ > 40 -50 ○ > 50 - 60 ○ > 60 ○ |
| 3 | Level of education: Uneducated ○ General education ○ Undergraduate ○ Postgraduate ○ |

**B. Characteristics of visits and drug therapy**

| | Question | Answer |
|---|---|---|
| 1 | Have you visited more than one health facility on the same day for the same illness? | Yes ○ No ○ |
| 2 | If you don't get better within the time expected, where will you go for follow up? | Return to the same facility ○<br>Go to another facility ○ |
| 3 | Do you accept if no medicines prescribed for you and only advice and assurance are provided? | Yes ○ No ○ |
| 4 | How many drugs do you prefer to have per consultation in general? | 1 ○ 2 ○ 3 ○ >3 ○ |

**C. Communication between patient and health provider**

| | Question | Answers |
|---|---|---|
| 1 | Do you inform the prescriber and dispenser about the drugs you are using currently? | Yes ○ No ○ |
| 2 | Do you ask the prescriber or dispenser about the side effects of the prescribed drugs? | Yes ○ No ○ |
| 3 | Do you request the prescriber or dispenser to explain how to take the prescribed drugs? | Yes ○ No ○ |
| 4 | Do you ask the prescriber or dispenser when to take the drug (before or after meals)? | Yes ○ No ○ |
| 5 | Do you ask the prescriber or dispenser where to store the prescribed drug at home? | Yes ○ No ○ |

**D. Patient concordance with treatment and perceptions**

| | Question | Answers |
|---|---|---|
| 1 | Do you know that all drugs have side effects? | Yes ○ No ○ |
| 2 | Do you stop taking the prescribed drug when you feel better or the symptoms disappear? | Yes ○ No ○ |
| 3 | What is the riskiest dosage form? | Syrup ○<br>Tablet ○<br>Injection ○<br>Don't know ○ |
| 4 | What is the route of administration you prefer? | Oral ○<br>Injectable ○ |
| 5 | Does the colour or taste of the drug influence your acceptance? | Yes ○ No ○ |

**E. Self-medication**

| | Question | Answer |
|---|---|---|
| 1 | Have you practised self-medication? | Yes ○ No ○ |
| 2 | Do you exchange medicines with others? | Yes ○ No ○ |
| 3 | How do you choose self-medication? According to: | Experience ○<br>Advice from others ○<br>Promotion ○<br>Advice from dispenser ○ |

**F. Storage and disposal of medicines**

| | Question | Answer |
|---|---|---|
| 1 | Do you store all medicines in the fridge?<br>If no, in which of the following places: wardrobe ○ medicine's box ○ on a shelf ○ in a drawer ○ in a bag ○ another place ○ (mention ……..…..) | Yes ○ No ○ |
| 2 | Do you check the expiry date before using the medicines? | Yes ○ No ○ |
| 3 | How do you deal with left-over medicine? | Keep it for future use by myself or others ○<br>Return it to the pharmacy ○<br>Throw it ○ |

*Note: The answers of the respondents will be filled in by data collectors*

facility to another or multiple visits to one facility and demanding multiple medicines. Cost sharing or cost recovery and a drug revolving fund have been implemented in some developing countries to improve drug availability and the quality of care.[7,8] It has been reported by prescribers that many patients in Oman believe the 200 baizas (50 cents) fee collected per visit is a charge for medicines.

**Table 2:** Main results of survey of public knowledge, attitudes and practices towards use of medications

| Identified attitudes and behaviour | Percentage of total respondents | 95% CI |
|---|---|---|
| *Characteristics of visits and drug therapy* | | |
| Visit more than one health facility on the same date | 66 | 65.07 - 67.35 |
| Do not return to the same health facility for follow up | 51 | 48.80 - 52.22 |
| Do not accept non-drug therapy | 39 | 38.27 - 40.63 |
| Prefer 3 or more drugs per consultation | 30 | 28.79 - 31.00 |
| *Communication between patient & health provider* | | |
| Do not inform the provider about the medicines they are using | 26 | 24.60 - 26.71 |
| Do not ask the providers how to take their medicines | 18 | 17.89 - 19.99 |
| Do not ask the providers when to take their medicines | 12 | 11.70 - 13.30 |
| Do not ask the provider about the side effects of prescribed drugs | 34 | 32.40 - 34.67 |
| Do not ask the providers where to store their medicines at home | 43 | 42.15 - 44.54 |
| *Patient concordance with treatment and perceptions* | | |
| Discontinue treatment when they feel better or symptoms disappear | 70 | 68.47 - 70.69 |
| Do not know that medicines have side effects | 26 | 25.30 - 27.43 |
| Do not know that injections are the riskiest dosage form | 61 | 59.43 - 61.79 |
| Prefer to take their medicines by injection | 14 | 12.96 - 14.63 |
| Influenced by the colour or taste of the medicine | 54 | 52.77 - 55.18 |
| *Self medication* | | |
| Practise self-medication | 43 | 42.06 - 44.45 |
| Do not consult dispensers when practising self-medication | 68 | 67.17 - 69.42 |
| Choose medicines according to previous experience | 36 | 34.51 - 36.82 |
| Exchange medications with others | 33 | 32.17 - 34.45 |
| *Storage & disposal* | | |
| Store all their medicines in a fridge | 55 | 55.87 - 56.27 |
| Use the medication without checking its expiry date | 17 | 16.27 - 18.09 |
| Throw out left-over medicines | 45 | 44.33 - 46.73 |
| Keep any left-over medicines for future use | 41 | 40.25 - 42.63 |
| Return left-over medicines to pharmacy | 12 | 11.20 - 12.77 |

## PATIENT-HEALTH PROVIDER COMMUNICATION

The interaction between the patient and the health provider (prescriber and dispenser) is clearly critical to health care delivery and the proper use and understanding of medicines. Training in communication skills frequently receives low priority in the medical curricula and in some health training institutions it is not covered at all. Health care providers should ask appropriate questions and give patients the information they need in a language they understand and the patients should also be encouraged to communicate properly. Patients should tell the prescriber about any conventional and traditional medicines they are using currently, and ask about the possible side effects and how and when to take the prescribed medicines, i.e. before or after food. Finally, they should know where to store them in the home.

## PATIENT ADHERENCE AND PERCEPTIONS

Many patients decide by themselves whether to continue taking the prescribed medicines if the symptoms disappear. They should continue their treatment as instructed by the health provider even if they feel better or the symptoms disappear. It is presently unclear how much advice is freely given by prescribers to patients in Oman. Most of the patients surveyed did not know that all medicines have side effects and injections are the riskiest dosage form or that the colour or taste of a medicine is largely irrelevant to the action of the medicine. Therefore, patients should ask about the side effects and not insist on having injections. They should leave the health provider to choose the appropriate dosage form and not refuse a medicine of different colour or taste than what they have taken before.

When people experience side effects such as nausea, vomiting or dizziness, it is usually thought to be a worsening of the illness. There are many examples in the news and literature where patients are apparently not using medicines in the way

intended by the health providers based on the amount and nature of unused medicine gathered. Some studies have shown low levels of adherence to medical regimens.[9] Research in the Gulf region suggests that as many as 50% of patients are non-adherent with the dosing regimens of their prescription.[4] In a household survey conducted in Gezira State, Sudan, 71% of all households reported poor compliance.[10]

## PRACTISING SELF-MEDICATION

Self-medication can be a problem in many countries. In certain countries, over 80% of all medicines are purchased by individuals for themselves or for a family member without a prescription. In a pilot study with small sample size interviewed at a local health centre, 65% of the respondents used non-prescription drugs, while a community study in Thailand described the overuse of analgesics in rural communities.[11,12] In a household survey conducted in Saudi Arabia and other Gulf countries, 43.5% of all households purchased drug products based on the advice of friends and relatives.[4] In another recent study conducted in eastern province of Saudi Arabia, self-medication was widespread among female school students.[13] In Sudan, a survey of households from Khartoum State showed that 81.8% of the study population had used medicines, including herbal remedies, without a medical consultation within 2 months prior to the study period.[14] Another household survey, conducted in Gezira State, found that all respondents had at least one pharmaceutical product stored at home, with around a half of all households reporting self-medication, re-use of stored medicines and exchange of drugs between family members.[10]

Patients should avoid practising self-diagnosis and self-medication. However, if they do, they should at least consult with the dispenser/pharmacist to ensure effective and safe treatment. Patients should not rely upon their past experience and advice of friends and relatives in dealing with health problems and they should never exchange medicines with others.

## STORAGE, EXPIRY DATE AND DISPOSAL OF MEDICATIONS

In our study, as well as in a pilot study conducted in one health facility, more than half of the respondents stored all of their medicines in a fridge.[11] The perception that all medicines should be stored in a fridge is wrong, but is enforced by the very hot and humid climate of Oman. The appropriate place for storing most of the medicines at home is in a medicine box, on a high shelf or hung high in a room or in a locked cabinet. Many homes now have air conditioning which keeps the indoor climate at a reasonable temperature and humidity. Medicines should always be kept out of the reach of children.

It is very important to check the expiry date when receiving and before using any medicine. A total of 37% of Saudi patients interviewed indicated that they never checked the expiry date of a medication prior to consumption.[4] In two surveys of UK households, 51% of medicines in the households were not in current use and of these, 40% were expired. [15,16]

Medication wastage is defined as any drug product either dispensed by a prescription or purchased over-the-counter that is never fully consumed. It is an important factor that contributes to escalating health care costs.[17,18] In another study conducted at primary health care facilities in Oman, one third of medicines prescribed were refused or rejected. The main reason for rejection (57%) was that patients had a stock of the same or similar drugs at home.[19]

Many patients do not know what to do with any medicine that remains unused. The availability of unused medicines in the home may constitute a source of material for irrational use and intentional or accidental poisoning. In the majority of cases, any unused medicine should not be kept for future use. It is very important to consult a dispenser on how to deal with these medicines as there is no regulation at present in Oman regarding the disposal of medicines by patients and public. In a recent study conducted in Kuwait, almost all respondents (95.7%) reported that they had medicines in the home which they wished to dispose of.[20] The most common method of disposal of unwanted medicines reported in the same study was to discard them in the waste bin (87.7%), a figure which is almost double that of this current study (45%). Only 11.9% of the respondents returned them to a pharmacy which is similar to the result found in this study. The impact of inappropriate medicine disposal by patients is a serious environmental issue.[21] Therefore guidelines on safe disposal of unwanted medicines are required and an organised method of collecting unused medication needs to be introduced.

### LIMITATIONS

For reasons of convenience, this study was conducted at health facilities only, so there is a chance that the clinical setting influenced some interviewees. A household survey is currently underway which may address this issue. The questionnaire, which was designed by the authors, was not psychometrically evaluated and no reliability index is currently available.

## Conclusion

The patient's own practices in using medicines are an important part of the quality use of medicines, as well as the prescribing habits and patient care practices by health workers. Unfortunately, health policy makers generally focus more on the provision and regulation of medicines and on efforts to improve health workers' prescribing skills, rather than on efforts to ensure rational use of medicines by consumers.[22]

Public education on the appropriate use of medicines is of crucial importance; therefore, well focussed campaigns could definitely bring about positive changes. These campaigns should include patient instruction at the time of illness in the appropriate use of medicines and instruction of the public at large, or of specific target groups, in the principles and practical application of appropriate use of medicines and other therapies. Therefore it is important to plan, develop, implement, monitor, evaluate and reassess effective public education programmes on RUM. The educational activities should be focussed on those people or groups whose medicine use patterns are in most need of change, taking into account the cultural and social context in which the beliefs and practices have developed. It is important to use a multi-educational aid approach in order to reach more people in the community and the necessary resources need to be allocated for this purpose. The WHO has published resource materials for educating the community on the rational use of medicines.[23]

Health care providers play a pivotal role in RUM activities. They have a professional obligation to avoid the undesirable consequences of inappropriate practice and improve the quality of patient care. Collaborating institutions such as the Department of Health Education and Information, non-governmental organisations (NGOs), professional associations, religious groups, development agencies such as the World Health Organization (WHO), United Nations Children's Fund (UNICEF), Health Action International (HAI) and others have important roles to play. They can enhance the visibility of any public education campaign, potentially increase its impact and promote rational medicine use concepts.

It is very important that public education should be accompanied by supportive legislation and regulation on promoting RUM in the community along with appropriate enforcement. The Directorate of Rational Use of Medicines in the Oman Ministry of Health has a major campaign planned for promoting rational use of medicines by the community. The campaign started in April 2009 with a nationwide household survey.

The results of the current study suggest a certain lack of knowledge and information about the proper use of medicines by the public as well as highlighting some unsound medicine use behaviour and inappropriate practices. Attitudes and beliefs have been revealed which contribute to increasing health risks, and potentially needless expenditure. This evidence makes the need to promote RUM in the community more compelling.

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### *Conflict of Interest*

The authors report no conflit of interest.

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