

EVALUATING KNOWLEDGE OF OVER THE COUNTER ANALGESICS AMONG BAHRAINI PEOPLE

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ABSTRACT

Objectives: The aim of this study was to investigate awareness of Bahrainis regarding analgesics proper use, doses, side effects (SE), and sources of information.

Methods: This was a cross-sectional survey of 100 Bahraini consumers aged 20 or more randomly selected. Using a self-administered questionnaire, volunteers answered questions regarding purposes, doses, SE, and sources of information of over the counter (OTC) analgesics.

Results: Majority of respondents reported using OTC analgesics. Paracetamol reported mostly. Most common purpose of use was a headache, followed by fever and flu pain. Analgesics improper use was reported by up to 27% of respondents. Although 60.6% were aware of gastrointestinal tract (GIT) SE, 46.1% were not taking them after food. Patients' sources of information included physicians (38.2%), pharmacy personnel (27%), and friends/relatives (28.1%). Although 70% reported reading analgesics package inserts, overdosing were notably reported (37%). A total of 32.6% referred to anti-histamines for analgesia. Interestingly, 36% reported that they have not ever encountered SE and 32% tended to discontinue using their analgesics if any is encountered.

Conclusion: Although analgesics are consumed enormously, paracetamol high consumption is attributed to its minimal SE. The reported correct use of analgesics might be due to their wide prescribing for such conditions. Using antihistamines for analgesia can be anticipated to their sedative effects, though this and some analgesics misuses can be attributed to the poor pharmacists' counseling.

Keywords: Acetylsalicylic acid, Analgesics, Aspirin, Awareness, Ibuprofen, Non-steroidal anti-inflammatory drugs, Over the counter, Paracetamol.

INTRODUCTION

Large number of medications is available to the public over the counter (OTC), which are obtained without a prescription [1]. An example of these is OTC analgesics which are non-opioid analgesics with pain relieving effects. These agents include paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) such as acetylsalicylic acid, ibuprofen, and diclofenac, which can be obtained OTC and can be consumed whenever required [2]. OTC analgesics are used for pain relief associated with many medical conditions including headaches, backaches, menstrual cramps, fever, and other pain related symptoms [2]. These agents vary in their analgesic, antipyretic, and anti-inflammatory effects ranging from paracetamol, a good analgesic and antipyretic medicine with no anti-inflammatory effects to the NSAIDs which possess powerful analgesic/antipyretic as well as anti-inflammatory actions [3]. These drugs are effective, safe, and convenient in most cases when administered rationally for short periods of time [4]. Since, OTC analgesics are always in reach and as there are no alternatives with such convenience, availability and fast onset of pain relief, misconceptions and knowledge gaps about the proper ways of dealing with them are likely to occur [4]. However, poor awareness of the proper consumption of these analgesics can all end up with serious side effects (SE) [4]. The aim of this study was to investigate knowledge of Bahraini people about appropriate ways of dealing with their OTC analgesics and how well they are informed about many analgesics associated aspects such as therapeutic uses, dosage regimens, and adverse drug reactions. To our knowledge, this is the first study to be done for this aim.

METHODS

A systematic review of the literature using several medical engines including the National Library of Medicine's PubMed database (limited to English language), data from ProQuest were performed. The search profile included comprehensive lists of various clinical studies that

were conducted in different world areas for statistically relevant information about OTC analgesics consumption. Data of these studies were eventually compared with the analysis of this study, under the purpose of evaluating knowledge of Bahraini people on OTC analgesics.

A cross-sectional survey was carried out to evaluate knowledge of OTC analgesics among Bahraini people. Using a standardized three paged self-administered questionnaire, 100 Bahraini consumers/patients aged 20 to more than 40 years were interviewed in different outpatient clinics including Budaiya, Noaim, Jidhafs, Hamad Town Health Centres, and Salmaniya Medical Complex. Both genders were enrolled, in which 30 males and 70 females of different educational levels ranging from illiterate to university leveled people were interviewed. Participants answered several questions regarding the use of OTC analgesics and knowledge of purposes of using these analgesics, dosage regimens, SEs and sources of information regarding OTC analgesics.

The survey was pilot tested on 10 subjects, presenting to Budaiya Health Center to improve the questions clarity and quality of data collection. The final survey, however, included 17 questions about different aspects of OTC analgesics including purposes of usage, frequency and time of administration, awareness of the SEs and sources of information. Full demographic data were collected for all subjects, including age, gender, and educational level. A summary score of percent correct answers was finally created.

Data were analyzed using the SPSS statistical software Version 20.0. (SPSS Inc. Chicago, IL, USA). Since the study is cross-sectional, the descriptive statistical analysis was conducted.

RESULTS

The most frequently used OTC analgesics were found to be paracetamol (96.6%) and ibuprofen (59.6%), and the least was diclofenac (27%). Acetylsalicylic acid and paracetamol 450 mg + orphenadrine citrate

35 mg consumption were reported by approximately 30% of the respondents for each (Fig. 1).

Most of the respondents revealed using analgesics correctly for headache (89.9%), followed by the pain related to fever and flu (64%). Other reported proper uses were toothache (43.8%) and generalized body pain (42.7%) (Fig. 2). However, significant number of participants was found to be misusing the OTC analgesics. Example of this is their use for cough (27%), sore throat (20.2%), sleeping disturbances (12%), and vomiting (12%). In addition, few participants were found to be improperly consuming these agents for injuries, diarrhea, and stress (Fig. 3). Interestingly, 32.6% of the respondents reported using antihistamines for analgesia (Fig. 4).

When asked about the reasons of resorting to OTC analgesics, most participants reported consuming their analgesics rationally and were comfortable regarding the incidence of analgesics' SEs (Fig. 5). Most of

which were found to consume analgesics during pain episodes (46.1%). Those who comply to administer analgesics after food were around 44% (Fig. 6).

Sources of information about OTC analgesics were found to be different. While the health care professionals represented the main source of information for the majority of participants, some admitted relying on media and advertisement and friends and relatives as the sole source of information (Fig. 7).

Health care professionals which represent the sources of information were found to be the pharmacy workers (total of approximately 58%) followed by the physicians (38%) and nurses (13%). Nevertheless, 58.4% of the participants revealed that pharmacists' counseling was limited to dose-related information and only 11% reported their counseling to be efficient (Fig. 8).

Awareness of analgesics' SEs among participants was also evaluated. It was found that the analgesics-induced gastrointestinal tract (GIT)

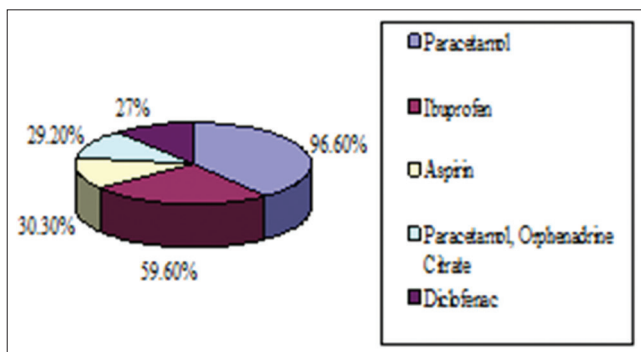


Fig. 1: Representative examples of percentage of consumed over the counter analgesics among Bahrainis

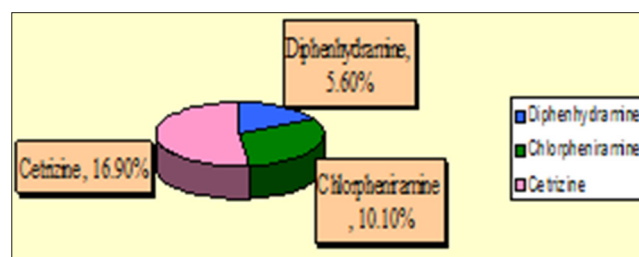


Fig. 4: Antihistamines used improperly for analgesia

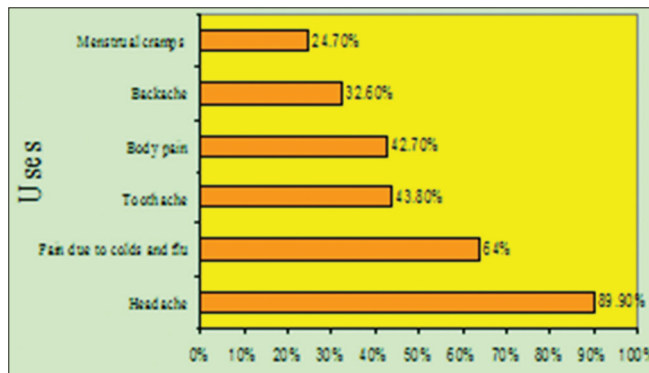


Fig. 2: The reported proper uses of over the counter analgesics among Bahrainis

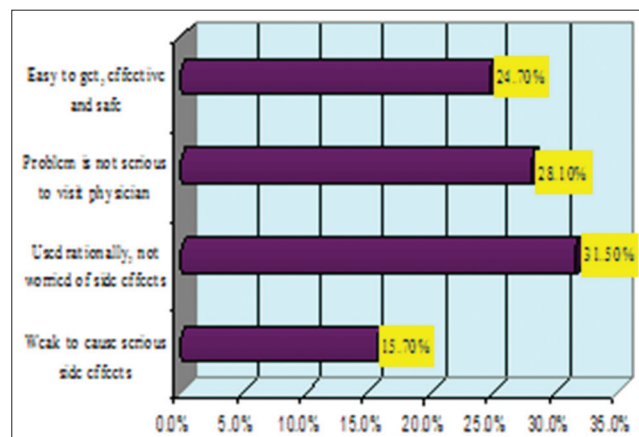


Fig. 5: Reasons of resorting to over the counter analgesics

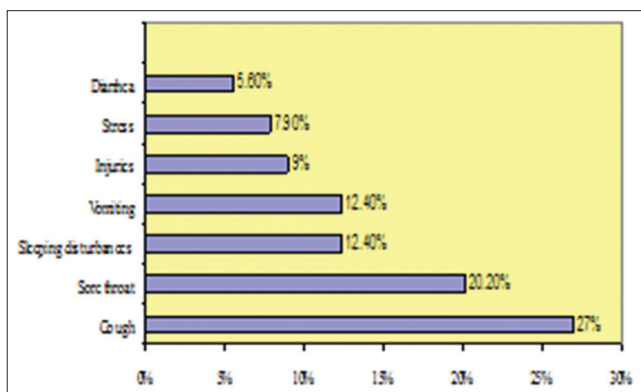


Fig. 3: Reported misuses of over the counter analgesics

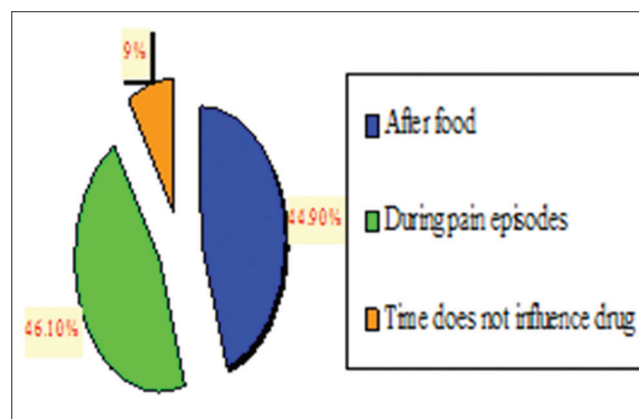


Fig. 6: Time of administration of over the counter analgesics among participants

SEs was the most significantly comprehended (61%). Other SEs like hepatotoxicity, renal toxicity, and cardiovascular toxicity were not recognized significantly by most participants, with approximately 10% for each (Fig. 9). However, when they were asked about their response to any SE or organ - specific risk of OTC analgesics, 32% reported that they have not ever felt such effects. Those who experienced SEs tended to discontinue using their medication (29%), report the SE to the physician (22%) or reduce the dose (9%) (Fig. 10).

DISCUSSION

It is clearly demonstrated that OTC analgesics are consumed enormously nowadays, as a large proportion of participants reported consuming OTC analgesics. It was found that paracetamol is consumed mostly. This may be due to its minimal gastrointestinal (GI) SEs and contraindications as compared to the NSAIDs, which were recognized for their GI SEs by most participants and which should cautiously be used in peptic ulcer disease, asthma, renal insufficiency, and heart failure. Many studies proved that the NSAIDs use is accompanied with a high incidence of GI irritation and ulceration [5] and even mortality [6,7]. It is clear that paracetamol is prescribed mostly, which might give a good implication that Bahraini physicians are conscious about the prevalence of NSAIDs-induced GIT events and the marked therapeutic index of paracetamol. Hence, they are mostly prescribing paracetamol as an alternative analgesic. Cost-effectiveness may also be a major reason, as paracetamol has low cost with reasonable efficacy. Several frustrations about the GIT events of NSAIDs seemed to be produced among Bahraini patients as well, which may be the reason of patients' preference of paracetamol to NSAIDs. Previous studies are supporting this concept as it is estimated that NSAIDs account for 16,500 deaths per year among rheumatoid arthritis patients, which is approximately equal to the number of deaths from AIDS and is considerably greater than deaths from many other serious diseases such as multiple myeloma, asthma, and cervical cancer [6]. Therefore, it should be emphasized that NSAIDs are cautiously consumed under the supervision of a health care professional. Another suggestion would be the trial of paracetamol for managing pain associated with chronic conditions. If not tolerated, NSAIDs should be initiated for analgesia. Concurrent administration of proton pump inhibitors should also be considered if using NSAIDs chronically, in order to reduce the incidence of GI irritation and ulceration. It is obvious that participants' perceptions are only concentrating on the GIT effects of NSAIDs and forgetting or not aware of the serious SEs of paracetamol. This was strongly noted when only a few participants realized paracetamol-induced hepatotoxicity and renal toxicity. Indeed, studies have suggested that although paracetamol is free from the GI problems like the other NSAIDs, it can cause hepatotoxicity, which can occur even at therapeutic doses [3]. This gives an idea that there are significant gaps regarding the comprehension of paracetamol SEs among Bahrainis. Moreover, the figure of ibuprofen consumption cannot be neglected as well and can be attributed to the decreased need for the frequency of administration as compared to paracetamol, in which two larger 500 mg tablets are usually prescribed, to be used every 4-6 hrs whenever the situation arises.

However, the misperceptions of using anti-histamines for analgesic purposes can be referred to their sedative effects, which calm patients during pain episodes or it might be attributed to misuse of the drugs.

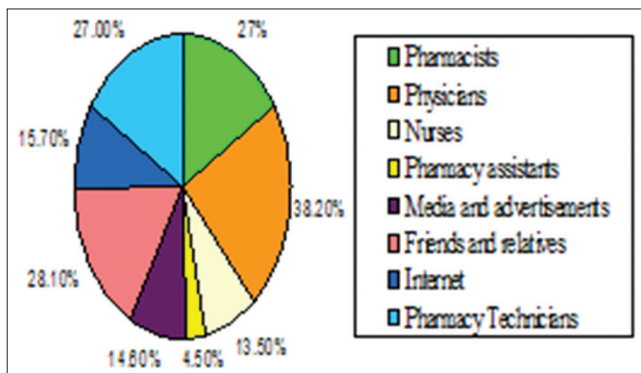


Fig. 7: Representative examples of sources of information about over the counter analgesics among Bahrainis including health care professionals versus other sources of information

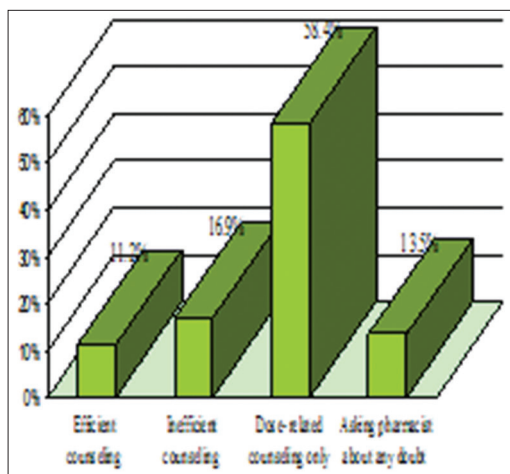


Fig. 8: Description of pharmacists/technicians counseling about over the counter analgesics

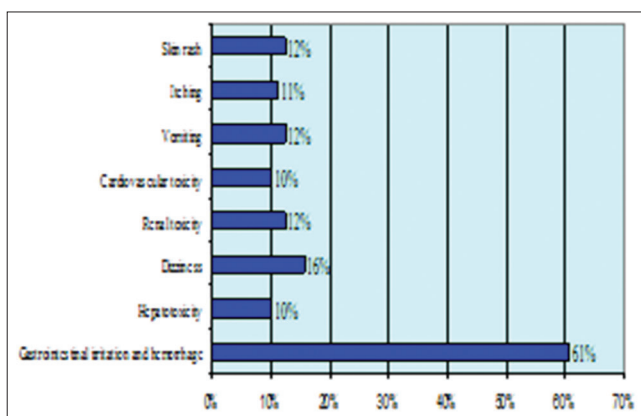


Fig. 9: Evaluating awareness of analgesics' side effects among participants

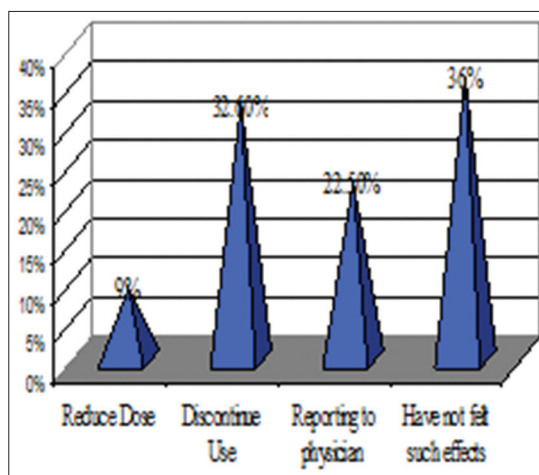


Fig. 10: Responses of participants to the incidence of analgesics' side effects

The reported correct uses of OTC analgesics like headache and pain related to fever and flu is because they are widely prescribed for such conditions. In addition, the stated misuses, poor awareness of the SEs, and increasing the dose if the desired effect is not attained can be all attributed to the poor pharmacists' counseling, which are violating the proper pharmacist's role as the participants stated that they provide the patients with dose-related information only. Another contributing factor is that most of these analgesics are being inappropriately dispensed without the package insert, especially in the government sector, which leaves no acknowledged sources available to the patient to refer to. The reason for dispensing some medications in the government sector without their package insert is the fact that they are received in packages of large quantity e.g., 1000 tablets and then repacked in smaller quantities in special containers. Although, many reported reading the package inserts, which are always attached to the OTC analgesics obtained from private sector, it may be mistakenly or difficultly interpreted by lay people, which in turn influence the drug use. In accordance with that, Cham *et al.*, (2002) demonstrated that more than 40% of USA patients surveyed in the emergency department was not aware of the GIT SEs of OTC analgesics and more than 60% did not realize the hepatic and renal SEs of these medicines (Table 1). There were no considerable differences between the results of both studies.

Although overdosing events were noticeably reported, a considerable proportion of subjects described their analgesics' consumption as rational and reported their satisfaction regarding the incidence of analgesics' SEs. This gives an indication that consumers are unintentionally overdosing, which may have a strong association with their poor knowledge on the SEs of these analgesics. Furthermore, participants may be aware of the possibility of the incidence of SEs upon using analgesics, but they might be uninformed that these SEs are dose related. Unfortunately, consumers seemed to be inadequately aware of the recommended doses of OTC analgesics. This can be explained by the fact that most analgesics are nowadays considered as PRN (as needed) medications, which are dispensed to the patients without having the maximum daily doses scheduled, leading to the consumption of repeated doses over unspecified periods of time which in turn end up with exceeding the safe doses. Poor labeling and inadequate counseling, which most participants complained of, may play a major role in this issue as well. In addition, the wide availability of these analgesics must be taken into consideration, as they are being overprescribed nowadays in the government sector without any restrictions and precisions, even if the physician is consulted for other medical purposes. Correspondingly, OTC analgesics of different brands are being largely sold in the private sector as well. Likewise, studies have indicated that the ease of access might be a factor for the increased incidence of paracetamol poisoning [9]. In addition, it was found that a positive association exists between paracetamol sales and its non-fatal overdose [10]. The results of the last study strongly support what we have gone for. For instance, a 24 tablet pack of 500 mg paracetamol is more than enough to cause hepatotoxicity and renal toxicity, if 4 g of paracetamol is considered as the maximum daily dose. Similarly, a 10 tablet pack of 200 mg ibuprofen is sufficiently able to cause toxicity if 1200 mg of ibuprofen is the maximum recommended daily dose. We do not advocate the idea that these analgesics should not be OTC, as they

are strongly required for the emergency cases, but the quantities they are being sold is a serious issue that is worth being considered.

Manangazira and Kasilo (1993) reported that Zimbabwe consumers referred to the health care professionals much less than Bahraini did to get information or to clarify doubts regarding their OTC analgesics (Table 2). Moreover, many patients are referring inappropriately to friends, relatives, and advertisements more than Bahraini did. Therefore, the educational level in Bahrain regarding this issue seemed to be better than Zimbabwe, since most Bahraini people recognized where to correctly seek information regarding OTC analgesics. In fact, considering friends and relatives as a source of information is a serious issue in both countries, especially in Zimbabwe, due to the possibility of exchanging wrong information upon referring to these. Besides, sharing experiences of poor medical background might lead to exchanging drugs mistakenly and potential wrong dosages leading to serious health issues. Simultaneously, the decisions of the consumers regarding the choice of their OTC analgesics are impacted by the commercial purposes of the advertisements although they may have a critical instructive role. Consequently, Ahonen *et al.*, (1991) stated that "advertising encourages use, as exemplified by a sharp increase in sales of ibuprofen immediately after it became an OTC agent in 1986" [12]. In order to unconsciously persuade consumers purchasing these products to have their pain relieved rapidly, advertisements tend to state the therapeutic applications rather than the SEs of these products. It was unexpected that only a few participants tended to refer to online sources like internet to get information about their analgesics, although it is widely available and easily accessed. However, it is unpredictable if those are referring to the reliable internet web sites or not.

With respect to the participants' responses to the incidence of analgesics' SEs, many responded by discontinuing these analgesics, without reporting it to their physicians, which is strongly not recommended. There is no doubt that informing the physician with the encountered SEs is a step forward to having this incident reported in the individual's medical history needless to mention the efficient counseling in which the physician guides the patient for further precautions and safeguard procedures. Thus, there is fear that participants mistakenly acquire different brands of OTC analgesics with the same active ingredients they had a problem with, upon referring to the private sector. In addition, the same analgesic may be subsequently prescribed to patients, who may be unconscious that this analgesic is the one he formerly developed SEs upon consuming. Besides, this will not serve the statisticians who may significantly improve the labeling and the guidelines of that product in order to minimize the incidence of the encountered SEs in the future.

This study found that OTC analgesics are the mainstay for pain relief among Bahraini people, which greatly stresses the importance of having satisfactory levels of comprehension regarding these agents. In general, knowledge of OTC analgesics in Bahrain is currently satisfactory although some knowledge gaps and misconceptions must be precisely clarified. Although some misuses and overdosing events of analgesics were reported, most of which seemed to be unintentionally practiced. Therefore, adequate counseling should be

Table 1: Awareness of drugs SEs in this study versus the United States of America [8]

SEs	Bahrain (n=100) (%)	USA (n=213) [3] (%)
GI SEs	39.4	More than 40
Hepatotoxicity and renal toxicity	78	More than 60

Comparison of the percentage of patients not aware about the NSAIDs SEs in Bahrain and USA. NSAIDs: Non-steroidal anti-inflammatory drugs, SE: Side effects, GI: Gastrointestinal

Table 2: Sources of information about OTC analgesics in Bahrain as shown in this study versus Harare, Zimbabwe [11]

Sources	Zimbabwe [11] (%)	Bahrain (%)
Physicians and nurses	20	38.2, 13.5, respectively
Pharmacists	19	54 (27 pharmacists, 27 technicians)
Pharmacy assistants	17	4.5
Friends and relatives	65	28.1
Advertisements	29	14.6

OTC: Over the counter

our first consideration. Indeed, the role of health care professionals, particularly the pharmacists is critical to ensure proper consumption of OTC analgesics. As follows, pharmacists should seize every possible opportunity to sufficiently educate consumers about the proper indications, recommended doses, the period of treatment, SEs, and contraindications. In addition, educational campaigns should be established which instruct consumers and answer their respective doubts regarding these agents. Recently, the Ministry of Health (MoH) declared a regulation which states that analgesics should not be dispensed as PRN medications and all doses should be scheduled to prevent misuse. This was a nice gesture from the MoH implying their concerns about this issue. Another suggestion to minimize misuse would be reducing the overwhelming sales of these analgesics in the private sectors to quantities sufficient for emergency cases only. Under all circumstances, there should be strict restrictions on selling any analgesic of inadequate or poor labeling and any reported incident of SEs should be included as a warning as well. In addition, package inserts should strictly be attached to the analgesics and it should be recognized that dispensing these without the package inserts informs patients obviously that there is nothing serious about these agents, which in turn leads to misuse.

It should be strongly noted that the pharmacists' role is vital in patient-medication education issue, as many complained of the insufficient counseling, especially regarding the SEs, unclear handwriting, and inadequate labeling. Further studies evaluating knowledge of OTC analgesics among Bahrainis should be established to further correlate the relationship between analgesics awareness and health care services provided by pharmacists.

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