

ORIGINAL ARTICLE

Patients' Knowledge, Attitude and Practice towards Painkillers: Tawau Hospital Experience

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ABSTRACT

Pain management with analgesics employs a multidisciplinary approach of clinicians towards patients. Nevertheless, preventing drug abuse and misuse in pain management is also an important goal. Understanding patients' behaviour in the usage of painkillers may facilitate more effective communication and to educate them on the appropriate choice of painkillers. This study aimed to assess patients' knowledge, attitude and practice towards painkillers. This was a questionnaire-based cross-sectional study conducted from February to May 2016 among patients in Tawau Hospital. Respondents were selected via convenience sampling and interviewed based on a questionnaire to assess their knowledge, attitude and practice towards painkillers. A total of 193 questionnaires with complete responses were analysed. Most of the respondents (60.1%) obtained their painkillers from public facilities. Generally, they were very satisfied with the painkillers that they had used (36.7%). However, most of them (75.0%) did not know the name of the ingredient of the painkillers that they had taken before. They were also not aware of the side effects (73.1%) and allergic reactions (64.8%) caused by painkillers. Most of the respondents (58.5%) had not been informed regarding the side effects of the painkillers by healthcare professionals. Only 25.0% of the respondents had been asked regarding their past medical history, past medication history and allergic history by healthcare professionals before a painkiller was recommended to them. This study highlights the need of continuous efforts by healthcare professionals to inform patients of the proper use and risks associated with painkillers to improve the quality use of painkillers.

INTRODUCTION

Pain is a complex physiological and psychological phenomenon that is defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”^{1, 2}. Analgaesics currently represent as mainstay to relieve different types of pain experienced in the body³. Adequate pain control is a fundamental right of every patient where effective pain management is an integral and important aspect of quality medical care. Pain management with analgaesics employs a multidisciplinary approach of clinicians towards patients, as well as the development of strategies to ease the suffering of pain⁴.

Nevertheless, preventing drug abuse and misuse in pain management is also an important goal. Common complications of inappropriate use of analgaesics include gastrointestinal disturbances, cardiovascular effects, kidney failure and liver failure³. Hence, self-prescribing analgaesics even for minor ailments could further lead to serious medical complications. Builders et al. showed prescription pattern of analgaesics involving 12.0% respondents were recommended by doctor, 5.0% by a pharmacist and 3.0% by a nurse while 80.0% were solely on self-medication⁴. A similar study conducted by Li et al. showed significantly high number of subjects (43.4%) answered that they obtained prescriptions from the physician, while 32.8% of the participants purchased an over-the-counter (OTC) analgaesic themselves⁵.

Self-medicating in Malaysia has remained more popular and will continue to rise with the rising healthcare costs. A recent Malaysian study reported that 75.0% of the respondents had used OTC drugs at least once⁶. A study conducted by Azhar et al. showed that patients preferred self-prescription because it is more convenient, easier to access and time saving when compared to consulting

a doctor⁷. Results from many studies involving Malaysia have pointed out that analgaesics were the most commonly used self-medication, followed by cough remedies and supplements^{6, 7}. Based on a study on the knowledge and attitude conducted by Azhar et al., about 82.0% of the respondents stated that their level of knowledge regarding OTC analgaesics was moderate to low⁷. It was also shown that 80.0% of the respondents claimed that they would stop using the OTC analgaesic if it did not work within the proposed time frame, while a small number of them would increase (7.0%) or decrease (5.0%) the dose⁷.

In Tawau Hospital, upper gastrointestinal bleeding, kidney failure and acute coronary syndrome due to suspected analgaesic misuse were some of the common causes of admission to medical wards based on previous admission records. Breaking patients' beliefs about the abuse and misuse of analgaesics is a key factor in controlling the unnecessary use of them. Besides, understanding patients' behaviour in the usage of analgaesics may facilitate more effective communication and to educate them on the appropriate choice of analgaesics based on different health conditions. Analgaesics are better known as painkillers among the layman population. Hence, this study aimed to assess patients' knowledge, attitude and practice towards painkillers.

MATERIALS AND METHODS

This was a questionnaire-based cross-sectional study conducted from February to May 2016 among patients from both outpatient and inpatient settings, Tawau Hospital, to investigate their knowledge, attitude and practice towards painkillers. This study was approved by Medical Research and Ethics Committee (MREC) of the Ministry of Health (MOH), Malaysia via the National Medical Research Registry (NMRR) with the registration number NMRR-15-2165-28238. All responses obtained from the interview were kept

confidential, and respondents are allowed to refuse participation in the study.

The minimum sample size required for this study was 255. This figure was arrived by assuming that a 95% chance of our estimate being within $\pm 5\%$ of the true proportion, assuming that 21.0% of the respondents understand the adverse effects of inappropriate use of painkillers based on literature review⁸.

The inclusion criterion in this study was that the respondent must be 18 years of age and above. The exclusion criterion would be those respondents who could not understand Malay, English, Chinese and Tamil.

Recruitment Procedure

A total of five pharmacists were selected as interviewers and data collectors. Prior to the study, all the data collectors and interviewers were given briefing for the purpose of standardization of the methodology used throughout the data collection process so that there would be no misinterpretation or misunderstanding of the study questions that might result in bias.

All eligible patients were approached by researchers. These patients were given an informed consent. If they agreed to participate in the study, they were then interviewed by the researchers on the spot for about 15 minutes based on the questionnaire.

Questionnaire

The questionnaire was developed based on literature review and group discussion and was then validated for its content by experts

who had at least five years of experience in the pharmacy practice. The questionnaire was pretested among 30 respondents prior to the actual study. Following pretest, the questionnaire was revised and modified. The questionnaire was divided into three sections: Section A collected patients' demographic information; Section B collected patients' pain experience; Section C collected patients' understanding towards painkillers and local health/community practice about the use of painkillers in Tawau.

Data Analysis

Data entry was done using the Statistical Package for the Social Sciences (SPSS), Version 21. Demographic information of respondents, their pain experience and knowledge, attitude and practice towards painkillers were analysed descriptively either in percentages or median (interquartile range) [IQR].

RESULTS

A total of 214 respondents were interviewed. However, only 193 questionnaires with complete responses (response rate 90.2%) were analysed.

Demographic Characteristics

Of the 193 respondents, 104 (53.9%) of them were from the outpatient facility and 89 (46.1%) of them were from the inpatient setting. A total of 111 (57.5%) respondents were males. The median (IQR) age of the respondents was 40.00 years (IQR 31.00, 51.00 years). Figures 1 to 4 show other demographic and clinical characteristics of the respondents.

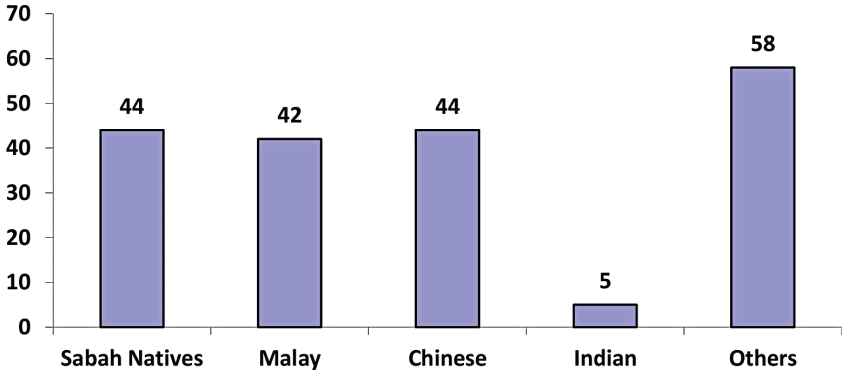


Figure 1 Distribution of race of the respondents

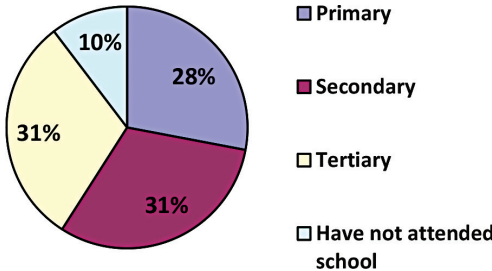


Figure 2 Highest education level of the respondents

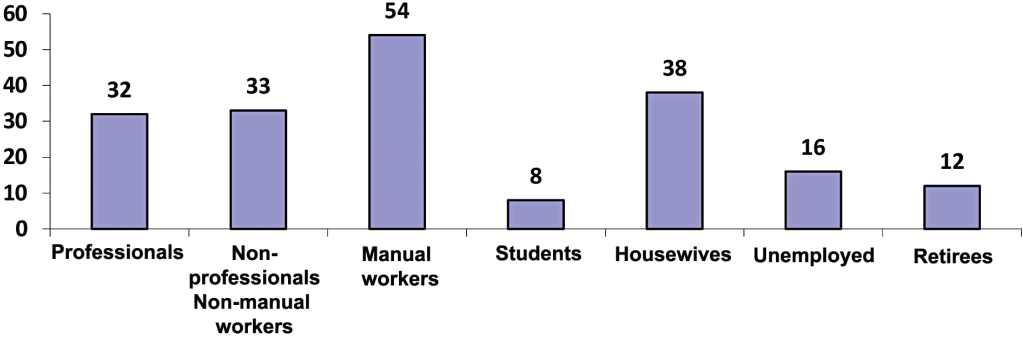


Figure 3 Distribution of occupation of the respondents

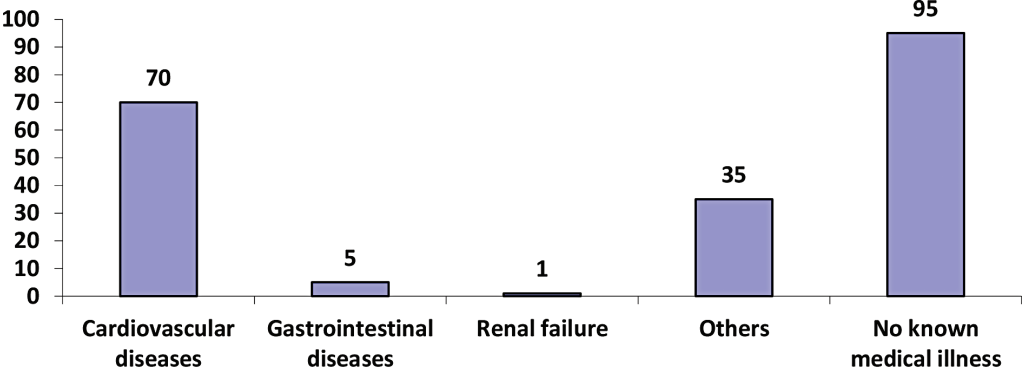


Figure 4 Past medication history of the respondents

Pain Experience and Pain Management

All respondents in this study experienced pain before. Table 1 shows the types of pain experienced by the respondents prior to this

study. The three most common types of pain were headache (66.3%), backache (47.2%) and abdominal pain (47.2%). Besides those in the list, 11 (5.7%) of the respondents experienced other types of pain such as heartburn, wound pain, eye pain, chest pain and labour pain.

Table 1 Knowledge about pain

Knowledge about pain (N = 193)	Type of pain	No. of patients	Percentage
	Headache	128	66.3
	Backache	91	47.2
	Abdominal pain	91	47.2
	Toothache	81	42.0
	Joint pain	78	40.4
	Muscle pain	68	35.2
	Bone pain	68	35.2
	Period pain	30	15.5
	Others	11	5.7

In terms of pain management, 149 (77.2%) respondents chose to consult their doctors and 54 (28.0%) chose to consult community pharmacists. The study also showed that 54 (28.0%) respondents chose to purchase painkillers without a prescription while 34 (17.6%) consumed herbal or traditional medicines to ease their pain. A total of 4 (2.1%) respondents chose alternative methods such as taking topical applications and watchful waiting.

Respondents' Knowledge towards Painkillers

This study assessed the knowledge of all respondents who participated in this study in terms of the name of the painkillers, side effects of painkillers and whether painkillers would cause allergic reaction or not. In terms of the

name of the painkillers, the respondents were given a list of names and they were required to identify the names that they had heard before. In general, most of the respondents (71.5%) had heard of paracetamol before. However, 53 (27.5%) respondents had never heard of any names before (Table 2A).

In terms of side effects caused by painkillers, 141 (73.1%) respondents did not know the side effects of painkillers and 10 (5.2%) of them claimed that painkillers were not associated with any side effects. Only 42 (21.8%) respondents knew the side effects caused by painkillers (Table 2B). The three common side effects claimed by the respondents were kidney problem (40.5%), gastric ulcer (26.2%) and dizziness (14.3%). Most of the respondents (71.4%) obtained the information regarding the side effects of painkillers from their doctors (Table 2C).

Table 2 Knowledge towards painkillers

A. Name of painkillers that the respondents had heard of (N = 193)	Name of painkillers	No. of patients	Percentage
	Paracetamol	138	71.5
	Mefenamic acid	58	30.1
	Ibuprofen	36	18.7
	Diclofenac	20	10.4
	Tramadol	22	11.4
	Morphine	16	8.3
	Celecoxib	10	5.2
	Etoricoxib	10	5.2
	I have never heard of any	53	27.5

B. Side effects caused by painkillers (N = 42)	Side effect	No. of patients	Percentage
	Kidney problem	17	40.5
	Gastric ulcer	11	26.2
	Dizziness	6	14.3
	Over-secretion of gastric acid	5	11.9
	Cardiovascular effects	5	11.9
	Addiction/Tolerance	3	7.1
	Internal bleeding	1	2.4
	Loss of consciousness	1	2.4
	Gastric disturbance	1	2.4
	Vomiting	1	2.4
	Asthma	1	2.4
	Osteoporosis	1	2.4
	Miscarriage	1	2.4

C. Source of information regarding the side effects of painkillers (N = 42)	Source	No. of patients	Percentage
	Doctors	30	71.4
	Pharmacists	18	42.9
	Relatives/friends	15	35.7
	Mass media (television, radio)	12	28.6
	Internet	12	28.6
	Reading materials	11	26.2
	Others	1	2.4

This study also showed that 125 (64.8%) respondents did not know that painkillers could cause allergic reactions. A total of 48 (24.9%) respondents knew that painkillers would cause allergic reactions and 20 (10.4%) of them claimed that painkillers would not cause allergic reactions.

Of the 193 respondents, 188 (97.4%) of them had used painkillers before. A total of 141 (75.0%) respondents in this study did not know the name of the ingredient/drug of the painkillers that they had taken before. Of the 47 of the respondents who did, most of them

(87.2%) had taken paracetamol, 11 (23.4%) of them had taken mefenamic acid and 4 (8.5%) of them had taken ibuprofen. Among some of the other painkillers that the respondents had taken before were diclofenac, celecoxib and tramadol.

Respondents' Attitude towards Painkillers

Table 3 shows the level of satisfaction of the respondents towards the painkillers that they had used. Generally, the respondents were very satisfied with the painkillers that they had used.

Table 3 Attitude towards painkillers

Level of satisfaction towards painkillers used (N = 188)	Level of satisfaction	No. of patients	Percentage
	Not satisfied	2	1.1
	Somewhat satisfied	16	8.5
	Neutral	36	19.1
	Satisfied	65	34.6
	Very satisfied	69	36.7

Respondents' Practice towards Painkillers

When being asked at what level of pain the respondents would take painkillers to ease the pain, most of them (28.7%) consumed painkillers if the pain score was 8. It was also found that the pain threshold among the 188 respondents was 2 (Table 4A).

Table 4B shows the methods the respondents obtained their painkillers. Most of the respondents (60.1%) obtained their painkillers from pharmacies in public facilities. The next common method was from private general practitioners (46.8%). Community pharmacies were found to be common places also. It was found that 63 (33.5%) respondents obtained their painkillers from community pharmacies via doctors' prescriptions or

recommendations by the community pharmacists. However, 86 (45.7%) respondents purchased their painkillers in community pharmacies over the counter. Some of the uncommon methods to obtain painkillers were from sundry shops, battalions and herbal shops.

In terms of frequency of painkiller consumption (Table 4C), most of the respondents (43.1%) consumed painkillers only when necessary.

When being asked whether the respondents read the labels or leaflets before taking their painkillers, 75 (39.9%) patients agreed that they did so, 51 (27.1%) patients claimed that they did not, and the rest of the patients only read the labels occasionally.

Table 4 Practice towards painkillers

A. Pain score and consumption of painkillers (N = 188)	Pain score	No. of patients	Percentage
	0	0	0.0
	1	0	0.0
	2	2	1.1
	3	8	4.3
	4	12	6.4
	5	22	11.7
	6	24	12.8
	7	28	14.9
	8	54	28.7
	9	27	14.4
	10	11	5.9

B. Methods to obtain painkillers (N = 188)	Method	No. of patients	Percentage
	Pharmacies in public facilities	113	60.1
	Doctors – clinics/dispensary	88	46.8
	Community pharmacies – via community pharmacists/prescriptions	63	33.5
	Community pharmacies – over the counter	86	45.7
	Supermarket	18	9.6
	Family or friends	17	9.0
	Online purchasing	1	0.5
	Others	4	2.1

C. Frequency of painkiller consumption (N = 188)	Source	No. of patients	Percentage
	Less than once a month	26	13.8
	About once a month	13	6.9
	Several times a month	66	35.1
	At least one day a week	2	1.1
	When necessary	81	43.1

In terms of meal consideration, it was found that a majority of the respondents (55.9%) consumed their painkillers without regard to meals, 75 (39.9%) respondents consumed them after meals and 8 (4.3%) respondents consumed them before meals.

It was also found that of the 188 respondents who had taken painkillers before, only 9 (4.8%) of them had consumed two or more types of painkillers at the same time. However, the respondents were not able to recall the name of the painkillers that they had taken together, in general. Among some of the combinations that could be identified were paracetamol with mefenamic acid, paracetamol with ibuprofen, paracetamol with tramadol and tramadol with etoricoxib.

Most of the respondents (56.9%) found that the painkillers helped to ease their pain. On the other hand, 79 (42.0%) respondents found that the painkillers only helped to ease their pain occasionally, depending on the nature of the pain. However, two respondents (1.1%) claimed that the painkillers that they had used did not ease their pain.

From this study, it was found that only 27 (14.4%) respondents had been informed regarding the side effects of the painkillers that they had been taking by healthcare professionals. Most of the respondents (58.5%) had not been informed regarding the side effects. On the other hand, 51 (27.1%) respondents claimed that they had been informed regarding the side effects occasionally only. Besides, only 47 (25.0%) respondents had been asked regarding their past medical history, past medication history and allergic history by healthcare professionals

before a painkiller was recommended to them. A total of 53 (28.2%) respondents claimed that they had never been asked regarding those information while 88 (46.8%) respondents had been asked regarding those information occasionally only.

DISCUSSION

Adequate pain control is a fundamental right of every patient where effective pain management is an integral and important aspect of quality medical care⁴. A patient who experiences pain will seek treatment by whatever means to relieve the pain. From the results of this study, a majority of the respondents consulted healthcare professionals such as doctors and community pharmacists when they experienced pain. However, there were 17.6% of them who consumed herbal or traditional medicines to ease their pain. A study conducted by Parvin et al. showed that when treatment with *Zingiber officinale* (ginger) for 5 days was given to students who suffered from primary dysmenorrhoea, significant effects were shown in terms of reduction of pain duration and intensity⁹. Despite the effectiveness, consumption of herbal or traditional medicines is associated with safety issues due to the poorly defined active ingredients in the products and the possibility of product adulteration with other substances. In fact, the Food and Drug Administration (FDA) and National Pharmaceutical Regulatory Agency (NPRA) regularly publish reports regarding side effects caused by adulterated or unregistered herbal or traditional products which are unsafe to be consumed¹⁰⁻¹². Consumption of such products might lead to health problems such as severe liver injury and kidney failure.

The World Health Organisation (WHO) pain ladder is a stepwise approach to the use of analgaesics depending on pain severity¹³. It is stratified into three steps for pain management. Step 1 recommends treatment of mild pain with non-opioid analgaesics such as paracetamol or nonsteroidal anti-inflammatory drugs (NSAIDs). Step 2 involves the addition of weak opioids such as hydrocodeine, tramadol or codeine, while Step 3 involves the addition of strong opioids such as morphine, fentanyl, or oxycodone. Adjuvants can be used to decrease anxiety along all the steps. Such analgaesics and adjuvants are used either in regular or as-needed basis depending to the types and severity of pain. However, based on the results of this study, we were not able to correlate the types and severity of pain with the types of analgaesic used and the frequency of consumption because most of our respondents did not know what analgaesics they consumed.

In terms of methods to obtain painkillers, it was noticed that most of the respondents obtained painkillers from reliable sources such as clinics and community pharmacies. In fact, obtaining painkillers from reliable sources is important because of the provision of proper assessment and recommendation by healthcare professionals and to avoid medication errors such as inappropriate choice of analgaesics. It was also noticed that most of the respondents obtained painkillers from public facilities. This phenomenon correlates with the demographic characteristics of the respondents in Tawau where most of them were from lower socioeconomic background and hence most of them sought treatment in public facilities.

The proper administration of painkillers is important. Some painkillers, for example the NSAIDs, are associated with gastrointestinal disturbances³. Hence, they should be taken with meals or after meals. In this study, it was noticed that most of the respondents consumed their painkillers without regard

to meals. However, conclusions could not be drawn on whether they consumed the painkillers correctly or not because most of the respondents did not know what painkillers they consumed. Besides, only approximately 40.0% of the respondents read labels or leaflets prior to taking their painkillers. Hence, they might miss the direction of administration which had already been printed or written on the labels. This study also assessed whether respondents had consumed two or more types of painkillers at the same time before. This question is relevant because such polypharmacy may not result in better pain control. Conversely, it increases the risk for patients to develop adverse drug reactions (ADRs). For example, consumption of two or more types of NSAIDs at the same time increases patients' risk to develop gastrointestinal ulceration, cardiovascular complications and renal failure³. However, no comments could be made on whether the co-administration of two or more types of painkillers by the respondents was appropriate or not because most of them did not know what painkillers they consumed.

The study also showed that the respondents demonstrated poor knowledge in terms of the name of the painkillers, side effects of painkillers and allergic reactions caused by painkillers. Users of painkillers are generally unaware of or unconcerned with the potential harmful effects, as painkillers are perceived to be relatively safe¹⁴. One study concluded that over 40.0% of people had the misconception that painkillers were weak and not harmful¹⁴. NSAIDs are a common cause of reported ADRs especially in long term use¹⁵⁻¹⁷. According to the FDA, NSAIDs may increase the chance of a heart attack or stroke that can lead to death, and this chance increases in patients who consume NSAIDs in long-term basis and in people who have heart disease. In fact, 36.3% of the respondents in this study had underlying cardiovascular diseases. Hence, consumption of painkillers, especially NSAIDs, can actually worsen their underlying cardiovascular problems. NSAIDs also cause

gastrointestinal ulceration and bleeding due to long-term consumption and the risk further increases with smoking, alcohol consumption, elderly, poor health status and taking concurrent medications such as corticosteroids and anticoagulants^{17, 18}. Besides, alteration of renal function, effects on blood pressure, hepatic injury, and platelet inhibition due to long-term NSAID consumption may result in increased bleeding¹⁹. Drug allergy is a serious adverse drug reaction and commonly concerned in healthcare practice²⁰. NSAIDs may cause allergic reactions such as skin rash and itchiness¹⁸. Hence, it is important that patients inform their healthcare providers if such symptoms occur so that prompt management can be provided.

In order to ensure quality use of painkillers, individuals need to understand the risks and benefits of taking painkillers²¹. Inadequate documentation and communication between health providers, and limited health literacy and knowledge in patients could contribute to the re-occurrence of ADRs and allergic reactions²². Some studies suggested that healthcare professionals providing counselling to patients about drug allergy and providing basic information about ADRs and their management, together with written information, could result in improved patients' knowledge^{20, 22}. Although patients would like to gain more information and be educated about the safety of a medication, some healthcare professionals are reluctant to inform patients about the possible risk of developing unexpected reactions after consuming the medication, particularly medications that have a low risk of adverse events. This was proven from our findings whereby only a small number of respondents had been informed regarding the side effects of the painkillers that they had been taking by healthcare professionals. Besides, only a small number of respondents had been asked regarding their past medical history, past medication history and allergic history by healthcare professionals before

a painkiller was recommended to them. In fact, providing education to patients, such as the need of reading labels, the generic name of medications, indications, proper administration methods and unexpected reactions, is important to ensure patients receive the right medication, at the right dose and for the right indication.

This study has a few limitations. First, it was conducted in a small population, namely in Hospital Tawau only, in which the results might not reflect the general perception of the Malaysian population. Second, the knowledge of our respondents towards painkillers was generally low. Most of them did not know what painkillers they consumed. Hence, further details could not be explored. Nevertheless, this study provides an insight of the knowledge, attitude and practice of Tawau population towards painkillers and the need of interventions to improve those aspects. Future studies should focus on specific risk groups of patients and interventions aimed at encouraging quality use of painkillers.

CONCLUSION

This study provides valuable findings regarding patients' knowledge, attitude, and practice towards painkillers within Tawau population. It highlights the need of continuous efforts by healthcare professionals to inform patients of the proper use and risks associated with painkillers to improve the quality use of painkillers.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests in publishing this paper.

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