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ORIGINAL ARTICLE

Medication Compliance of Patients Attending a Pain Clinic at a Tertiary Hospital in Malaysia

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ABSTRACT

Pain is a public health problem with profound physical, emotional, and societal costs. Conventional oral analgaesics are usually the first treatment, which is cost-effective and relatively safe. However, medication noncompliance is a serious healthcare concern. Medication noncompliance has remained a significant challenge despite considerable efforts to improve patient compliance. Therefore, a study was done to assess medication compliance at a Pain Clinic in a tertiary hospital in Malaysia. The study period was from December 2019 to January 2020. A total of 180 patients participated in the study. The study showed that pain clinic patients' medication compliance was 65%. With the improvement of medication compliance, the quality of life of patients with pain can be improved.

INTRODUCTION

Pain is associated with tissue damage, inflammation, or a relatively straightforward disease process and is usually referred to as acute pain. However, if the pain persists for longer than three months, either as an accompaniment to a disease process or following the usual amount of time expected for an injury to heal, it would be referred to as chronic pain (Turk & Melzack, 2011). In addition, the International Association for the

Study of Pain (IASP) has defined pain as an unpleasant sensory and emotional experience associated with or resembling that associated with actual or potential tissue damage (Raja et al., 2020).

The experience of chronic pain is a significant health problem. Pain can cause profound physical limitations, emotional stress, and increased societal costs (Institute of Medicine (US) Committee on Advancing Pain Research, Care, and Education, 2011). Oral or intravenous analgaesics are always the first treatment, which is cheap and relatively safe. Intravenous analgaesics are usually given in the hospital setting. However, these oral analgaesics will be escalated if necessary. The selection of analgaesic therapy is based on the intensity of the pain, according to the World Health Organization (WHO) (1996). These analgaesics should be given regularly based on their pharmacological recommendation. In addition, additional doses may be provided for breakthrough pain when needed.

Health providers must ensure that patients with pain must develop a treatment plan. The focus should be optimising the patient's daily function, quality of life, and productivity while minimising analgaesic side effects. One of the requirements to achieve this goal is for the patient to be compliant with their medication. Medication compliance is the extent to which a patient correctly follows medical advice (Preedy, 2017). With good compliance, the treatment plan will be achievable.

However, medication noncompliance is a severe worldwide healthcare concern (Berg et al.,1993). Despite considerable efforts to improve patient compliance, more should be done for noncompliance with medication (Miller et al., 1997). These reasons should be addressed as soon as possible for the sake of the patients.

If the compliance issue is not addressed well, the patient's pain will be more challenging. In addition, this will eventually cause a financial strain on health management (DiMatteo et al., 1992; Hammond & Lambert, 1994; Hayes et al., 1979). Authors can divide and talk about what happens if this problem is not addressed well from the point of view of the patient, patient's family, employer, and healthcare system. This would make the introduction organised and understandable. This paragraph is a repeat of what has been stated before.

Until this point in the Introduction, I still do not understand the authors' objectives. The objective of this study is to assess compliance with medication among patients with chronic pain in a tertiary hospital in Malaysia and to identify the possible reasons for the noncompliance of these patients.

MATERIALS AND METHODS

This study was done at a Pain Clinic in a hospital located in Penang, Malaysia, which is a tertiary hospital in Malaysia. The study period was from December 2019 to January 2020. Convenient sampling was done. The patients attending this clinic were screened based on their medical records. The inclusion criteria included patients with chronic pain who was on analgaesics for at least three months. Patients will be excluded if they are pregnant or refuse to participate in the study. Patients who agreed to participate in this study were asked to sign consent forms. This study has been approved by the Ethical Committee (NMRR-19289248404).

Participants were given validated Medication Compliance Questionnaires (MCQ). This Medication Compliance Questionnaire (MCQ) was developed by Hassan et al. in 2006 to assess medication adherence. The patients were given the questionnaire while waiting to see the doctor. The questionnaire typically took 30 – 45 minutes to complete. There were two sections in the questionnaire. The first section

was about the socio-demographic data of the patients. These include sex, race, employment status, educational status, visitation to physiotherapy, pain score, and compliance with medication. The second section of the questionnaire was about the MCQ. It comprised ten questions in two domains: a drug-taking behaviour domain, which contained seven items, and a drug-stopping behaviour domain, which included three items. The internal consistency reliabilities of this study (Cronbach's alpha values) were 0.67 and 0.84. The test-retest single-measure intra-class correlation co-efficient were 0.78 and 0.93. The study scores were calculated using the Likert scale ranging from 1 to 5, with five indicating 'never' and one meaning 'very frequently'. All negatively worded scores were reversed, and all scores were converted to a 0 – 100 score. Patients with good compliance or adherence, with a score of 75 or more, answered 'frequently' or 'very frequently' to all items in the questionnaire. Patients who scored less than 75 were considered to be in the non-adherence group. The full-adherence group was patients who scored 100.

Descriptive statistics were used to analyse the sociodemographic and clinical data. The results were presented as means and frequencies. The association between adherence, sociodemographic and clinical factors was analysed using the Chi-square test. The significance level was set at a $p < 0.05$, with a 95% confidence interval. Analyses were performed with the Statistical Package for Social Sciences (SPSS), Version 23.

RESULTS

A total of 180 patients participated in the study based on convenience sampling. The response rate was 100%. The socio-demographic characteristics of the respondents are shown in Table 1. The mean age of the respondents was 50.49 and 13 years old. There was almost an equal number of males and females in this study. There were more Malay and Indian respondents compared to Chinese respondents.

Table 1 Demographic profile of patients (n = 180)

Variable	Mean (SD)	Frequency (%)
Age (Years ± SD)	50.49 (13)	
Gender		
• Male		93 (51.7)
• Female		87 (48.3)
Race		
• Malay		68 (37.8)
• Indian		67 (37.2)
• Chinese		45 (25)
Employment status		
• Employed		85 (47.2)
• Unemployed		95 (52.8)
Educational level		
• None		17 (9.4)
• School		74 (41.1)
• College		60 (33.3)
• University		29 (16.1)
Physiotherapy		
• Yes		95 (52.8)
• No		85 (47.2)
Pain Score		
• Mild (0 – 3)		71 (39.4)
• Moderate (4 – 6)		64 (35.6)
• Severe (7 – 10)		45 (25)
Compliance		
• Yes		117 (65)
• No		63 (35)

*SD: Standard deviation

Our study showed that pain clinic patients' medication compliance was 65%. However, overall the patient's mean pain score was 4.53 ± 2.3.

The Pearson correlation coefficient was computed to assess the relationship between the pain score and compliance level, which showed that $r\ (178) = -0.30$, $p = 0.00$. This explains that patients with good compliance with pain medications tend to report lower pain scores and better pain control.

Table 2 Compliance level among the sub variables

Variables	Compliance (N)		X^2	P
	Yes	No		
Gender				
• Male	65	28	2.02	0.15
• Female	52	35		
Employment status				
• Employed	54	31	0.15	0.70
• Unemployed	63	32		
Pain severity				
• Mild	51	20	4.74	0.09
• Moderate	43	21		
• Severe	23	21		
Attending physiotherapy				
• Yes	65	30	1.04	0.31
• No	52	33		

Table 2 shows no significant difference between groups (gender, employment status, pain severity, and physiotherapy visit) and their compliance level, $p > 0.05$.

The main reason for noncompliance in our study population is patients who tend to take medication only when they feel unwell rather than taking it regularly as prescribed. Besides that, the patients also tend to stop taking medication once they feel betterThe third reason patients tend to stop taking medication is if they experience any side effects after taking the drug.

Table 3 Descriptive statistics of each question

Item	Questions	Mean score (SD)
Q1	Taking medication as prescribed	1.69 (0.79)
Q2	Taking medication only if feeling unwell	3.29 (1.34)
Q3	Having difficulty taking medication every day	4.09 (1.27)
Q4	Forgets to take medication	4.08 (1.17)
Q5	Takes double dosing subsequently if missed dose	4.22 (1.18)
Q6	Changes timing of medication without doctors' advice	4.11 (1.21)
Q7	Reduces medication intake once feeling better	3.73 (1.25)
Q8	Stops taking medication when it feels not effective	3.84 (1.38)
Q9	Stops taking medication when gets any side effects	3.67 (1.45)
Q10	Stops taking medication once feeling well/better	3.48 (1.53)

The mean score of individual questions (1 = Very frequent, 2 = Frequent, 3 = Occasionally, 4 = Rarely, 5 = Never).

DISCUSSION

There are several reasons for the under-treatment of pain. One of the factors is poor compliance with pain medications. A study showed that only 21% of cancer patients were adherent to pain medication therapy (Valeberg et al., 2008). This was much lower than the adherence to anti-hypertensives and medications used for hyperlipidaemia, which were 43% and 36.7%, respectively. (Morisky et al., 1998; Sung et al., 1998). This low compliance to pain medication will eventually decrease patients' quality of life (Graziottin et al., 2011). Our study showed that patients with better medication compliance have significantly lower pain severity. To investigate the reasons behind the low compliance level, a proper understanding of the factors that affect compliance with medication needs to be reviewed.

Several factors affect compliance with medication. This includes age, sex, the severity of disease, lower socioeconomic status, and many others. This is summarised in Table 4.

Table 4 Factors associated with compliance (Hassan et al., 2006)

Factors
• Age
• Sex
• Severity of disease
• Lower socioeconomic status
• Satisfaction with healthcare
• Physician-patient relationship
• Drug of choice
• The number of medications prescribed
• Symptoms of Depression
• Drug tolerability with the patient
• Intension to comply
• Co-morbid medical conditions among the patients
• Family support for the patients
• Self-efficacy

Many misbeliefs affect their medication-taking behaviour (Gunnarsdottir et al., 2003). For example, most patients taking opioids for pain control have a severe fear of addiction. The patients were also concerned about tolerance, which they fear will cause a bigger problem if their pain progressed shortly. Tolerance is the diminished response to medication during repeated or prolonged exposure. The possible side effects of the drug may also deter the patient from being compliant (Meuser et al., 2001).

There are several steps to improve medication compliance. It can be broadly divided into four methods: patient education, enhanced dosing schedules, increased clinic opening hours, and improved communication between physicians and patients (Osterberg & Blaschke, 2005). The methods are summarised in Table 5.

Education regarding medication usage is critical. The patient, relatives, and health care providers should be informed regarding the medication given, especially the side effects after taking the drug. Patients must be aware that side effects may be present, but the medication can be continued if pain control is good with a tolerable side effect.

Improving dosing schedules is also an effective way to improve medication compliance. Dosing schedules can be improved with reduced frequency of dosing and the use of pill boxes. Another step that could help to improve medication compliance is for patients to avoid missing their clinic appointment. This can be accomplished by reminding the patient regarding their appointment. Increasing the clinic opening hours may also help, but this involves increasing the number of staff in the clinic. Physician training is also an essential step in improving compliance. With proper training, communication between physicians and patients can be improved. With good communication between doctors and patients, medication compliance can be improved.

Table 5 Steps to improve medication compliance among chronic pain patients

Principles	Suggested methods
Patient Education	• Education of the patient • Education of relatives • Education of healthcare providers
Improved dosing schedules	• Reduced frequency of dosing • Pill-boxes
Avoid miss clinic appointments	• Increased clinic open hours • Patient reminders days before the clinic
Improved communication between physicians and patients	• Physician training

Although these suggestions appear simple, they involve a lot of planning and implementation. A standard printed guideline should also be available to patients to improve their compliance. This guideline should include the medication's possible side effects and emphasise the need to continue if the side effects are tolerable. The policy given to the patient should also have a phone number for patients to contact if further information is needed.

CONCLUSION

Pharmacological management remains the cornerstone of pain management. However, poor compliance remains a barrier to achieving this. Among the steps that may help to improve adherence are patient education, improved dosing schedules, avoiding missing clinic appointments, and improving communication between doctors and patients. More efforts are needed to achieve these steps. However, proper planning and exemplary implementation of these steps will significantly enhance patients' quality of life in pain.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest in publishing this article.

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