

## Recent Advances in Research on Analgesic Medication Adherence in Patients with Advanced Cancer

**Authors:** Fang Shuheng, Xiao Hongmei, Hengmei Zhu

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### Abstract

Advanced cancer patients often suffer from varying degrees of pain, which represents an extremely common symptom during disease progression. However, achieving early, standardized, continuous, and effective analgesia remains a challenge in current clinical practice. Research demonstrates that nearly 70% of cancer pain patients do not receive scientific analgesic treatment; furthermore, among those who do receive treatment, 43% fail to obtain adequate effective therapy or control, and 63% of patients experience breakthrough pain. The rationality of standardized medication use and treatment adherence in advanced cancer patients are directly related to analgesic efficacy. This article reviews the current status, influencing factors, and intervention strategies regarding opioid medication adherence in cancer pain patients, aiming to improve adherence to analgesic medication, alleviate pain, enhance comfort, and thereby improve quality of life.

### Full Text

## New Advances in Research on Analgesic Medication Adherence in Advanced Cancer Patients

**Fang Shuheng, Xiao Hongmei, Zhu Hengmei**

Department of Anesthesiology, Special Needs Medical Department, Third Affiliated Hospital of Naval Medical University, Shanghai 200438, China

**Abstract:** Advanced cancer patients often suffer from varying degrees of pain, an extremely common symptom throughout disease progression. However, achieving early, standardized, continuous, and effective analgesia remains a challenge in current clinical practice. Studies show that nearly 70% of cancer pain patients do not receive scientific analgesic treatment, and among those who do receive treatment, 43% do not obtain adequate or effective control,

with 63% experiencing breakthrough pain. The rationality and adherence of standardized medication use in advanced cancer patients directly affect analgesic outcomes. This article reviews the current status, influencing factors, and intervention strategies for opioid medication adherence in cancer pain patients, aiming to improve adherence to analgesic medications, alleviate pain, enhance comfort, and thereby improve quality of life.

**Keywords:** Cancer patients; Analgesic drugs; Pain; Medication adherence

## 1. Current Status of Cancer Pain Medication Use

According to the 2020 analysis report on malignant tumor epidemiology in China released by the National Cancer Center, there are 3.929 million new malignant tumor cases annually in China. After age 40, the incidence of malignant tumors rises rapidly, peaking at age 80, with individuals over 60 being the high-risk group [1]. With advancements in medical technology, targeted and immunotherapy drugs and techniques continue to innovate, extending patient survival, but cancer pain also poses clinical challenges. Persistent cancer pain can lead to decreased appetite, poor sleep quality, insomnia, reduced immunity, and can trigger negative emotions such as anxiety and depression; in severe cases, patients may commit suicide due to unbearable pain. Additionally, cancer treatments such as radiotherapy, chemotherapy, and surgery can also cause pain [2-3].

Clinically, the preferred method for relieving and controlling cancer pain is the use of analgesic medications, primarily following the WHO's proposed three-step analgesic ladder [4]. This approach standardizes medication use based on pain intensity, nature, and location, but problems exist such as long treatment duration, drug tolerance, and pain hypersensitivity reactions. Oral analgesics are currently the first choice for cancer pain treatment, yet numerous factors contribute to reduced medication adherence among cancer pain patients, affecting treatment efficacy and quality of life [5-6].

Studies both domestically and internationally indicate that medication adherence among cancer pain patients is generally unsatisfactory, with hospitalized patients showing better adherence than home-based patients. Foreign research found that 17.3% of advanced cancer patients have concerns about opioid side effects, and 42.3% have problematic attitudes toward medications, leading to decreased adherence [2]. Geng Yaqiong [7] used the Chinese version of the Medication Adherence Scale (MMAS-8) to survey hospitalized lung cancer patients in oncology departments, finding that 33.3% had poor medication adherence. Wang Juan et al. [8] used a self-reported medication adherence questionnaire to evaluate 143 home-based moderate-to-severe cancer patients, revealing adherence of only 55.2%. Thus, whether hospitalized or at home, low adherence to pain treatment has become a key obstacle in cancer pain management, and improving patient medication adherence is an urgent issue for healthcare professionals.

## 2. Factors Influencing Medication Adherence in Cancer Pain Patients

### 2.1 Health Education Factors

As the fifth vital sign of the human body, pain directly affects patients' physical and mental health, and pain in cancer patients is a clinical challenge faced by healthcare providers, patients, and families together. Research indicates that the focus of pain education should shift from professionals to patients and their families. Healthcare providers need to strengthen communication with patients, utilize pain care pathways, help patients deepen their understanding of cancer pain, improve their adherence to analgesic medication and pain care, and promote nurse-patient collaboration [9]. Specific measures include explaining disease knowledge to enhance patient understanding and cooperation; understanding patients' and their families' cultural backgrounds to strengthen trust in healthcare providers; explaining pain causes, precautions, and methods for protecting painful areas; informing patients about possible side effects of opioid analgesics and countermeasures; encouraging cancer pain patients to exchange pain experiences and share analgesic strategies; optimizing the surrounding environment to enhance patient comfort; and providing personalized pain care knowledge.

### 2.2 Family Structure Factors

Family members play a critical role in pain control. Family members have the deepest understanding of patients' psychological states, personality behaviors, and lifestyle habits, and their care and concern are irreplaceable [10]. Research has shown [11] that patients from high-functioning families achieve medication adherence rates of 98.33%. A good family support system can supervise patients to take medication regularly, play a monitoring and management role, enhance patients' self-management abilities, and thereby improve medication adherence.

### 2.3 Education Level Factors

Insufficient knowledge among cancer patients is an important reason affecting medication adherence. Studies indicate that cancer patients have widespread misconceptions about cancer pain medications [12]. Currently, opioid preparations are commonly used drugs for relieving cancer pain, but many patients are constrained by traditional concepts of "addiction." Medication adherence differs significantly among cancer pain patients with different education levels. Due to cognitive biases, some patients neglect the importance of following medical advice for pain control and relief, struggle to overcome misconceptions such as "long-term use causes addiction" and "no pain means no medication needed," frequently discontinue medication on their own or arbitrarily increase dosages, leading to poor adherence [10-12].

## 2.4 Behavioral and Cognitive Factors

Cognitive level is an important factor influencing medication adherence in cancer pain patients, and patients' behavioral patterns determine their adherence behaviors. Some scholars [6] note that most patients with poor adherence exhibit casual medication behaviors, weighing pros and cons during treatment based on symptom control and adverse drug reactions to decide whether to follow medical advice on timing and dosage. Patient beliefs—namely, patients' perceptions of their own condition, understanding of disease severity, and predictions of disease prognosis and outcomes—are also important factors affecting medication willingness [13]. Ou Na [14] et al. found in qualitative interviews with 12 cancer pain patients that some held negative attitudes toward analgesic therapy, believing that medications were unrelated to cancer treatment or ineffective for pain relief, and such incorrect medication beliefs led to poor adherence. Currently, research on intentional and unintentional medication adherence behaviors in cancer pain patients is limited, and future studies need to deeply explore related factors and their associations with patients' actual analgesic behaviors and pain treatment outcomes.

## 3. Intervention Strategies to Improve Medication Adherence in Cancer Pain Patients

### 3.1 Diversified Health Education Models

Effective health education models directly relate to patients' cognitive levels. Advanced cancer patients require long-term analgesic medication to control pain, but as treatment duration increases, drug tolerance develops. Without strengthened education, patients may develop one-sided medication use, addiction concerns, and other issues, leading to missed or reduced doses and ineffective cancer pain control and relief [15]. The empowerment education model proposed by Zhang Ruxia et al. [16] is patient-centered, utilizing six steps: problem identification, emotional expression, goal setting, plan development and implementation, effect evaluation, and consolidation summary. Through question-and-answer formats, patients participate in decision-making, have their questions answered, and their subjective initiative is fully mobilized. The Green Model of health education intervenes from multiple angles, levels, and aspects, helping cancer pain patients establish correct medication concepts and develop good behaviors through peer support that provides information and emotional support, thereby improving adherence. Huang Lining et al. [17] employed the teach-back method, having patients repeat information for timely correction and reinforcement to ensure effective communication, while also involving family members in treatment management to supervise and remind patients to take medication, enhancing treatment confidence. Du Bili et al. [18] used the Transtheoretical Model as guidance, developing personalized health education programs based on the psychological and behavioral characteristics of cancer pain patients across five stages of behavior change, improving patient self-management abilities and

treatment participation. Healthcare providers should shift the focus of pain education to patients and their families, strengthen communication, utilize pain care pathways, and improve patients' understanding of cancer pain and medication adherence.

### 3.2 Standardized Drug Management

China strictly manages opioid drugs as narcotics, and unlike drug abuse situations in some countries, there remains a phenomenon of cautious prescribing and insufficient usage [19]. During hospitalization, opioid medications are uniformly managed by ward nurses and stored in narcotics cabinets; for discharged patients, opioid medications should be properly kept by family members, with large quantities strictly prohibited from being given directly to patients, and family education and guidance should be provided. The management processes for narcotic analgesic drug use and dispensing remain unstandardized and require improvement [14]. Information management tools can be utilized to optimize narcotic drug management and dispensing processes; methods such as special cards for cancer patient narcotic use and returning empty ampoules after medication can be borrowed to ensure both rational patient use and management safety, preventing drug abuse; cancer pain clinics should be actively established to strengthen management of pain control quality in discharged patients.

### 3.3 Continuing Nursing Care

As high-quality nursing services advance, the concept of transitional care has increasingly gained attention among healthcare professionals. Studies show that decreased adherence is largely due to insufficient understanding of disease pathogenesis, lack of knowledge about proper pain assessment, and concerns about toxic reactions to opioid analgesics [20-21]. Nursing staff should inform patients about cancer pain-related knowledge at discharge to alleviate concerns. Meanwhile, through diverse methods such as telephone follow-ups, telephone consultations, online platform health education, home visits, establishment of specialized clinics, door-to-door services, and health education lectures, comprehensive services should be provided. Mobile health interventions should be customized according to patient needs to supervise analgesic drug use and pain relief effectiveness after discharge, inform patients about cancer pain treatment and knowledge regarding adverse reactions to and prevention of opioid analgesics, and mentally prepare patients for developing drug tolerance and dependence from long-term use. Nurses should understand patients' post-discharge medication situations, including whether they take medication on time and at the correct dosage, whether they reduce or discontinue medication on their own after pain improvement, whether there are missed or extra doses, and whether adverse reactions such as nausea, vomiting, or constipation occur during treatment, as well as sleep and dietary conditions. Timely emotional counseling should be provided for patients with negative emotions to enhance their treatment confidence and improve adherence.

#### 4. Establishing an Integrated Nursing Service System

Cancer is a chronic disease with long treatment and care cycles, and the family has become the primary treatment setting, with primary caregivers playing a key role in improving medication adherence. The hospital-community-family integrated model has become a new nursing service model for cancer patients. Research reports [22] that adopting a “hospital-community-family” triadic linkage model, establishing a cancer pain specialist team, conducting comprehensive assessments of cancer pain patients, providing standardized full-course medication guidance during hospitalization, emphasizing family care after discharge, supervising patient medication behaviors, and providing guidance through multiple forms can improve knowledge mastery among patients and caregivers, thereby enhancing patient medication adherence.

In summary, advanced cancer patient treatment is characterized by multi-directional and multi-form approaches, and effective cancer pain control mechanisms along with improved patient adherence are among the important factors affecting patient pain, with other influencing factors involving patient and family cognition, family structure, education level, health education, and other aspects. Therefore, it is necessary to strengthen education on pain and analgesic drug knowledge, implement transitional care, and timely observe the therapeutic effects and adverse reactions of oral analgesics; to use medication rationally according to patient conditions, improve adherence to oral analgesics in cancer pain patients, effectively control pain, and enhance the quality of life for cancer patients [10,18,20]. Hospitals, communities, and families should establish multi-chain linkages, provide personalized interventions for medication use in advanced cancer patients, strengthen adherence management, reduce patient suffering, and improve treatment efficacy and quality of life.

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