OPEN ACCESS

**Saudi Journal of Medicine**
Abbreviated Key Title: Saudi J Med
ISSN 2518-3389 (Print) | ISSN 2518-3397 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

**Review Article**

# A Retrospective Chart Review of Dexamethasone Prescribing in Palliative Care Settings in Riyadh, Saudi Arabia

Dr Fatimah Hussain Abu Qurain[1]*, Gassan Abudairi, MSN, RN[2], Steven Callaghan, MSN, RN[3], Muneerah Almutairi, MSN, RN[4], Dr Mahmoud Sroor, MD[5], Ruth Evangelista, BSN, RN[6], Dr Faisal Al Kattan, MD[7], Dr Musab Aldhari, MD[8]

[1]Palliative Care Fellow, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[2]Clinical Nurse Specialist, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[3]Advanced Clinical Nurse Specialist, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[4]Head Nurse, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[5]Palliative Care Assistant Consultant, Medical Oncology & Haematology Department, Assistant professor, clinical oncology, Faculty of Medicine, Cairo University, Egypt
[6]Staff Nurse, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[7]Palliative Care Fellow, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia
[8]Palliative Care Consultant, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

**DOI:** https://doi.org/10.36348/sjm.2026.v11i08.002 | **Received:** 24.06.2026 | **Accepted:** 17.08.2026 | **Published:** 20.08.2026

***Corresponding Author:** Dr Fatimah Hussain Abu Qurain
Palliative Care Fellow, Medical Oncology & Haematology Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia

## Abstract

***Background*:** Dexamethasone is crucial in palliative care for advanced cancer, improving symptoms like appetite loss and fatigue. However, guidelines are lacking, and side effects require close monitoring. The indications for corticosteroid use in this patient group are diverse, including the treatment of specific conditions such as spinal cord compression, elevated intracranial pressure, and loss of appetite. Due to the challenges in prescribing these medications for palliative care patients, there is evidence of suboptimal practices in the literature. This study aimed to examine the current patterns of corticosteroid prescribing in healthcare settings across Saudi Arabia and determine whether these practices align with international guidelines. ***Aim(s) of the Study*:** The objective of this study was to analyse current dexamethasone prescribing patterns in palliative care settings in Saudi Arabia and assess their alignment with international standards. ***Method*:** A retrospective chart review was conducted on inpatient palliative care patients who received dexamethasone at KFSHRC, Saudi Arabia, between January 1, 2022, and January 1, 2024. All available charts of patients under the care of the Palliative Care team who had a cancer diagnosis and received dexamethasone during that timeframe were included. Data collection focused on the number of patients prescribed dexamethasone, indications for use, choice of agent, dosages and adjustments, duration of treatment, occurrence of adverse effects, method of discontinuation, adherence to guidelines, and monitoring and review processes. Exclusion criteria: patients prescribed dexamethasone by other primary services will be excluded. ***Results*:** A total of 78 patients were included (median age 55.6 years), with the majority being female (56.4%) and having metastatic disease (89.7%). Gastrointestinal cancers were the most common diagnosis (33.3%), and 70.5% of patients were not receiving disease-modifying therapy at the time of dexamethasone initiation. The most frequent indications for dexamethasone were raised intracranial pressure/cerebral oedema (16.7%) and nausea/vomiting (15.4%), with a median daily dose of 4 mg; the IV route was most used (78.2%). Overall, 29.5% of patients demonstrated a documented clinical response, most commonly improvement in dyspnoea. Response was more frequent in patients treated for dyspnoea/airway obstruction (70.0%, $p = 0.006$) and in those receiving higher doses ($p = 0.029$). Adverse effects were rare (2.6%), limited to hyperglycemia. Median time to response was 2 days (IQR 2–3), with most responses occurring within 72 hours.

***Conclusion*:** This study showed that corticosteroids are widely prescribed in palliative care settings, both for specific and non-specific indications. These findings are generally consistent with international literature in this field, supporting the role of dexamethasone in targeted symptom palliation, especially in patients with respiratory compromise, while also highlighting the need for ongoing discussion about the role of corticosteroids in palliative care, as well as the need for clear documentation of indication and response in routine practice.

**Keywords:** Patients with Advanced Cancer, Dexamethasone, and Palliative Care.



# INTRODUCTION

Corticosteroids are well-established medications that have been widely prescribed in palliative care since the late 1950s [1]. Corticosteroids play a crucial role in the management of advanced cancer and can offer dramatic symptomatic improvement across various conditions [2]. However, guidance on corticosteroid use in palliative care remained limited, and prescribing is often based on clinical experience rather than robust evidence [3]. However, several studies have reported variations in corticosteroid prescribing practices in relation to dose selection, indications, duration of the corticosteroid, and tapering across palliative care services [2]. Consequently, corticosteroids are used for a wide range of both specific and non-specific indications [1-4]. Several organizations have published recommendations for the use of corticosteroids in palliative care. These recommendations advise that prescribing corticosteroids should have clear indications, regular review of effectiveness, and the use of the lowest possible dose for the minimum possible duration [2].

Previous studies have reported that corticosteroids are prescribed to more than 50% of patients with cancer, with dexamethasone being the preferred corticosteroid [5]. Dexamethasone is commonly prescribed for conditions such as anorexia, decreased appetite, nausea, fatigue, and general deterioration in well-being [1]. Multiple studies have demonstrated marked improvement in appetite and strength after two weeks of dexamethasone treatment; however, these effects tend to diminish after four weeks [6, 7].

Despite the widespread use of corticosteroids, the evidence supporting corticosteroid prescribing in palliative care remains limited, with a lack of high-quality studies for many commonly encountered indications [2]. Dexamethasone is commonly selected because of its potent anti-inflammatory effects, long half-life, and minimal mineralocorticoid activity, making it suitable for once-daily administration and reducing fluid retention in frail patients [8]. In clinical practice, dexamethasone is frequently prescribed for both specific indications, such as malignant bowel obstruction, spinal cord compression, and cerebral oedema, as well as non-specific symptoms including fatigue, anorexia, nausea, pain, and low mood [9, 10]. Corticosteroid therapy is associated with the potential for serious adverse effects. Reported complications include delirium, proximal myopathy, oral candidiasis, hyperglycaemia, infections, psychiatric disturbances, and skin breakdown, particularly with prolonged use [11]. A prospective study found that dexamethasone use was associated with an increased risk of delirium in patients with advanced cancer, particularly among those with poor performance status and concurrent opioid use [12]. Therefore, patients should be closely monitored, prescribed the lowest effective dose, and treatment discontinued if no clinical benefit is achieved.

Despite the widespread use of corticosteroids in palliative care, variation in prescribing practices and concerns regarding adverse effects highlight the importance of evaluating their use in clinical practice. The burden of cancer in Saudi Arabia continues to increase [13], creating a growing demand for specialist palliative care services and effective symptom management strategies. However, data describing corticosteroid prescribing practices within Saudi palliative care services are lacking. A review of the available literature identified no published studies examining corticosteroid prescribing practices in specialist palliative care settings in Saudi Arabia. Therefore, this study aimed to describe corticosteroid prescribing patterns, including indications, doses, duration of therapy, and monitoring practices, within a specialist palliative care service in Saudi Arabia and to evaluate their alignment with current evidence and international recommendations.

### Study Aim

This study aims to examine the indications, frequency, effectiveness, adverse effects and overall survival days for patients receiving dexamethasone in a palliative care service.

# METHOD

### Design and Setting

A retrospective chart review was conducted on inpatient palliative care patients who received dexamethasone at KFSHRC, Saudi Arabia, between January 1, 2022, and January 1, 2024. The PC Team consists of specialised medical consultants and two clinical nurse specialists. Services include inpatient and outpatient consultations, home visits, and a 15-bed unit for cancer patients at the end of life.

### Population

Inclusion Criteria: Adult patients with a confirmed cancer diagnosis under the care of the Palliative Care team who received dexamethasone during the study period. Patients prescribed dexamethasone by other primary speciality services were excluded.

**Sources of Data**

Data were obtained from a retrospective review of electronic medical records for patients under the Palliative Care team with a confirmed cancer diagnosis who received dexamethasone during the study period. A formal request was submitted to the institutional data warehouse to identify eligible patients and retrieve relevant records.

Extracted data included patient demographics (age, gender, and region of residence in Saudi Arabia); oncological characteristics (cancer diagnosis, sites of metastasis, receipt of disease-modifying treatments such as chemotherapy or radiotherapy, presence of active bleeding before dexamethasone prescription, and resuscitation status [DNAR/Full Code]); pre-dexamethasone variables (indications for dexamethasone prescription, history of corticosteroid use within the preceding 3 months, and concurrent use of medications associated with bleeding risk, including anticoagulants, antiplatelets, anti-inflammatory agents, and selective serotonin reuptake inhibitors); and post-dexamethasone outcomes (initial dose, route of administration, tapering strategy and dose adjustments, symptom response and time to response, occurrence of adverse events, reason for discontinuation, length of hospital stay, and survival following initiation of dexamethasone).

In addition, each dexamethasone prescription event was defined as a distinct "episode," with patients potentially contributing multiple episodes if treated on different dates.

**Ethical Considerations**

This study received ethical clearance from the Institutional Review Board (Reference # 2251294).A waiver for informed consent was granted.

**Statistical Analysis**

Statistical analysis of data will be done using the Statistical Package for the Social Sciences (SPSS) version 25.0 for Macintosh. Descriptive statistics and graphic analyses will be used to examine the data. Categorical variables will be reported as frequency and percentage values. Continuous variables will be reported with their mean/median based on the data's normal distribution. Multiple logistic regression analyses will be used to evaluate various predictors of non-adherence. Results with a P-value < 0.05 will be considered significant. Post-hoc analysis might be added to bolster the analyses according to the results.

## RESULTS

A total of 78 patients were included in this study. The median age was 55.6 years (IQR: 41.6–67.0), with age demonstrating a statistically significant deviation from normality (Shapiro–Wilk W = 0.968, p = .047). Females comprised 56.4% (n = 44) of the cohort, while males accounted for 43.6% (n = 34). Regarding cancer type, GI cancer was the most common diagnosis (33.3%, n = 26), followed by brain cancer (16.7%, n = 13) and bone cancer (14.1%, n = 11). Gynaecological cancer accounted for 10.3% (n = 8), breast cancer for 9.0% (n = 7), and kidney, urinary, and other cancer types each for 3.8% (n = 3 each). ENT and lung cancers were the least common, each representing 2.6% of the sample (n = 2). Most patients had metastatic disease (n = 70, 89.7%), whereas 8 patients (10.3%) had no documented metastasis. Regarding the clinical management of the malignancy, most patients (n = 55, 70.51%) were not receiving disease-modifying treatments. Among those who were receiving active therapy (n = 23, 29.49%), chemotherapy and radiotherapy were the most common modalities, each administered to 14 patients, while immunotherapy was utilised in a minority of cases (n = 2). Active bleeding before dexamethasone initiation was uncommon and was documented in 4 patients (5.1%), whereas 74 patients (94.9%) had no active bleeding before starting dexamethasone.

**Dexamethasone Indication**

Indications for dexamethasone were non-mutually exclusive. The most frequently documented indication was raised intracranial pressure or cerebral oedema (n = 13, 16.7%), followed by nausea and vomiting (n = 12, 15.4%). Dyspnoea or airway obstruction and anorexia/cachexia were each documented in 10 patients (12.8%), while cancer-related fatigue was reported in 9 patients (11.5%). Pain due to inflammation or nerve compression was documented in 8 patients (10.3%). Spinal cord compression and hypercalcemia of malignancy were each reported in 4 patients (5.1%). No cases were documented for inflammation in hematologic malignancies. In 22 patients (28.2%), the indication was not stated.

**Dose of Dexamethasone**

The median total daily dexamethasone dose was 4 mg (IQR: 4–8 mg). The most frequent dose was 4 mg daily (n = 40, 51.28%), followed by 8 mg daily (n = 15, 19.32%). The total daily dexamethasone dose varied by indication. The highest median dose was observed in patients treated for spinal cord compression (median = 11 mg, IQR: 8.5–15), followed by raised intracranial pressure/cerebral oedema (median = 8 mg, IQR: 4–8). Median doses were 6 mg (IQR: 4–8) for pain due to inflammation or nerve compression and 6 mg (IQR: 4–8) for hypercalcemia of malignancy. For nausea and vomiting, dyspnoea/airway obstruction, anorexia/cachexia, and cases with no stated indication, the median daily dose was 4 mg. Regarding the administration of dexamethasone, the intravenous route was most frequently utilised (n = 61, 78.21), followed by oral administration (n = 17, 21.79%). No instances of subcutaneous or intramuscular administration were recorded in the study population. Dexamethasone dosing remained unchanged for most of the cohort (n = 40, 51.28%). For patients requiring adjustments, dose reduction was the most common intervention, with

16.67% (n = 13) undergoing gradual tapering and 10.26% (n = 8) receiving a single-step decrease. The medication was discontinued entirely for 16.67% (n = 13) of patients, while dose escalation was required in only 5.13% (n = 4) of cases.

"Dose reduction was implemented for 26.9% (n = 21) of the cohort, with 16.67% (n = 13) undergoing gradual tapering. The most frequent target dose achieved during gradual tapering was 2 mg (n = 8, 61.5%), followed by 4 mg (n = 3, 23.1%). Tapering was initiated from starting doses as high as 24 mg and as low as 4 mg. Dose escalation was performed in 5.13% (n = 4) of the study population. In 75.0% (n = 3) of these instances, the increase resulted in a documented symptom response. Dose increases were primarily associated with the management of dyspnoea and airway obstruction (n = 3), where doses were escalated from 4 mg to as high as 12 mg daily.

**Dexamethasone Response**

Of the 78 patients initiated on dexamethasone, a clinical symptom response was documented in 29.49% (n = 23) of cases. Most of the cohort (n = 55, 70.51%) did not exhibit a documented positive response to the medication or no documentation of response.

Symptom-specific responses to dexamethasone were documented as non-mutually exclusive outcomes. The most frequently recorded symptom improvement was dyspnoea (n = 7, 9.0%), followed by neurological deficits (n = 5, 6.4%) and nausea and vomiting (n = 4, 5.1%). Improvement in pain was documented in 3 patients (3.8%), while improvement in hypercalcemia-related symptoms was reported in 2 patients (2.6%). Headache, fatigue, and dizziness each improved in 1 patient (1.3%). No documented improvement was recorded for swelling and inflammation, and no cases were explicitly coded under “no response.”

Among patients who demonstrated a documented symptom response to dexamethasone (n = 23), the most frequently improved symptom was dyspnoea (n = 7, 30.4%), followed by neurological deficits (n = 5, 21.7%) and nausea and vomiting (n = 4, 17.4%). Improvement in pain was observed in 3 patients (13.0%), while hypercalcemia-related symptoms improved in 2 patients (8.7%). Headache, fatigue, and dizziness each improved in 1 patient (4.3%). No improvement was documented for swelling and inflammation.

Fisher’s exact tests were performed to examine the association between each dexamethasone indication and documented symptom response. Dyspnoea/airway obstruction was significantly associated with a higher likelihood of response, with 7 of 10 patients (70.0%) showing documented improvement compared with 16 of 68 patients (23.5%) without this indication, p = .006, OR = 7.58. In contrast, cases in which the indication was documented as not stated were significantly less likely to have a documented response (1/22, 4.5% vs. 22/56, 39.3%), p = .002, OR = 0.07. No statistically significant associations were observed for raised intracranial pressure/cerebral oedema, spinal cord compression, nausea and vomiting, fatigue, pain, hypercalcemia, or anorexia/cachexia.

A Mann–Whitney U test showed that patients with a documented symptom response received a significantly higher total daily dexamethasone dose than non-responders, U = 808.0, p = .029. The median daily dose was 8 mg (IQR: 4–8) among responders compared with 4 mg (IQR: 4–8) among non-responders. Mann–Whitney U tests were performed to compare total daily dexamethasone dose between patients with and without documented response for each symptom separately. No statistically significant differences were identified for any symptom-specific response outcome (all p > .05). However, descriptively, higher median daily doses were observed among patients with documented improvement in nausea and vomiting, dyspnoea, pain, and neurological deficits.

**Side Effects of Dexamethasone**

Dexamethasone was found to be well-tolerated within the study population, with 97.44% (n = 76) of patients having no documented adverse effects. Clinical complications were limited to steroid-induced hyperglycemia, which occurred in 2.56% (n = 2) of the cohort. No instances of psychiatric disturbances, gastrointestinal distress, or opportunistic infections (e.g., oral candidiasis) were recorded during the treatment period.

**Dexamethasone Response Time in Days**

For the subset of patients who exhibited a clinical response (n = 23), the onset of therapeutic effect was rapid. The mean response time was 2.35 days (SD = 1.07), with a median of 2.00 days (IQR = 2.00). The response times ranged from 1 to 5 days, with 75% of all responders exhibiting symptomatic improvement within the first 72 hours of treatment initiation.

**Combined Dexamethasone Utilisation and Discontinuation**

Dexamethasone therapy was maintained until discharge or death for most of the study population (66.67%, n = 52). For the remaining 33.33% (n = 26) of the cohort, rational discontinuation was documented, with an equal distribution between abrupt cessation (n = 13) and gradual tapering to a zero-milligram dose (n = 13). The primary clinical rationale for discontinuation was significant symptomatic improvement, observed in 38.46% (n = 10) of those who stopped the medication. Other documented reasons for cessation included the transition to terminal care in the final hours of life (30.77%, n = 8), a documented lack of clinical response (23.08%, n = 6), and the development of adverse effects (7.69%, n = 2).

**Length of Stay**

The median length of stay was 16.0 days (IQR: 7.0–27.5). A Mann-Whitney U test was conducted to determine if there was a significant difference in length of stay between patients who exhibited a clinical response to dexamethasone and those who did not. While responders demonstrated a slightly higher median length of stay (16.0 days, IQR = 18.0) compared to non-responders (14.0 days, IQR = 31.0), this difference was not statistically significant, U = 655, p = .547. These findings suggest that the clinical benefit of dexamethasone in this cohort is focused on symptom palliation rather than an extension of survival duration.

A Spearman's rank-order correlation was performed to assess the relationship between the total daily dose of dexamethasone and hospital length of stay (N = 77). There was a weak negative correlation between the two variables (r = -.165), but the relationship did not reach statistical significance (p = .152). These results suggest that the dosage of dexamethasone is not a significant predictor of the duration of hospitalisation within this palliative care cohort.

A Mann–Whitney U test demonstrated that patients receiving intravenous dexamethasone had a significantly longer length of hospital stay compared with those receiving oral therapy, U = 303.0, p = .012. The median LOS was 18 days (IQR: 8–30) for the IV group and 9 days (IQR: 5–16) for the oral group.

**Multiple Logistic Regression**

An exploratory multivariable logistic regression was performed to examine factors associated with documented symptom response to dexamethasone. The overall model was statistically significant, $\chi^2(4) = 15.16$, p = .004, and explained 16.0% of the variance (pseudo $R^2 = .160$). Dyspnoea as an indication was independently associated with higher odds of documented response (adjusted OR = 9.41, 95% CI [2.02, 43.92], p = .004). Total daily dexamethasone dose showed a non-significant positive trend (adjusted OR = 1.18 per mg, 95% CI [0.98, 1.42], p = .072). Raised intracranial pressure/cerebral oedema (adjusted OR = 2.95, 95% CI [0.78, 11.15], p = .111) and intravenous route (adjusted OR = 1.21, 95% CI [0.31, 4.70], p = .784) were not significantly associated with response.

**Table 1: Demographics**

| Variable | n (%) or Median (IQR) |
|---|---|
| **Age (years)** | 55.6 (41.6–67.0) |
| **Gender** | |
| Female | 44 (56.4) |
| Male | 34 (43.6) |
| **Cancer type** | |
| Gastrointestinal (GI) | 26 (33.3) |
| Brain | 13 (16.7) |
| Bone | 11 (14.1) |
| Gynaecology | 8 (10.3) |
| Breast | 7 (9.0) |
| Kidney | 3 (3.8) |
| Urinary | 3 (3.8) |
| Other | 3 (3.8) |
| ENT | 2 (2.6) |
| Lung | 2 (2.6) |
| **Metastatic disease** | |
| Yes | 70 (89.7) |
| No | 8 (10.3) |
| **Receiving disease-modifying treatment** | |
| Yes | 23 (29.5) |
| No | 55 (70.5) |
| **Active bleeding prior to dexamethasone** | |
| Yes | 4 (5.1) |
| No | 74 (94.9) |

**Table 2: Indication of Dexamethasone**

| Indication | n (%) |
|---|---|
| Raised intracranial pressure / cerebral oedema | 13 (16.7) |
| Nausea and vomiting | 12 (15.4) |
| Dyspnea / airway obstruction | 10 (12.8) |
| Anorexia and cachexia | 10 (12.8) |
| Cancer-related fatigue | 9 (11.5) |

| Indication | n (%) |
|---|---|
| Pain due to inflammation or nerve compression | 8 (10.3) |
| Spinal cord compression | 4 (5.1) |
| Hypercalcemia of malignancy | 4 (5.1) |
| Not stated | 22 (28.2) |

**Table 3: Dexamethasone Treatment Outcomes and Administration Characteristics (n = 78)**

| Variable | n (%) |
|---|---|
| **Overall symptom response** | |
| Yes | 23 (29.5) |
| No | 55 (70.5) |
| **Symptom-specific response*** | |
| Dyspnea (shortness of breath) | 7 (9.0) |
| Neurological deficit | 5 (6.4) |
| Nausea and vomiting | 4 (5.1) |
| Pain | 3 (3.8) |
| Hypercalcemia symptoms | 2 (2.6) |
| Headache | 1 (1.3) |
| Fatigue | 1 (1.3) |
| Dizziness | 1 (1.3) |
| Swelling and inflammation | 0 (0.0) |
| No response | 0 (0.0) |
| **Route of administration** | |
| Intravenous (IV) | 61 (78.2) |
| Oral (PO) | 17 (21.8) |

**Table 4: Symptom-specific response among responders (n = 23)**

| Symptom | n (%) among responders |
|---|---|
| Dyspnea (shortness of breath) | 7 (30.4) |
| Neurological deficit | 5 (21.7) |
| Nausea and vomiting | 4 (17.4) |
| Pain | 3 (13.0) |
| Hypercalcemia symptoms | 2 (8.7) |
| Headache | 1 (4.3) |
| Fatigue | 1 (4.3) |
| Dizziness | 1 (4.3) |
| Swelling and inflammation | 0 (0.0) |

**Table 5: Association Between Dexamethasone Indications and Documented Symptom Response (Fisher's Exact Test)**

| Indication | Response in indication group n/N (%) | Response in others n/N (%) | Odds ratio | Fisher's exact p |
|---|---|---|---|---|
| Raised intracranial pressure / cerebral oedema | 6/13 (46.2%) | 17/65 (26.2%) | 2.42 | .187 |
| Spinal cord compression | 2/4 (50.0%) | 21/74 (28.4%) | 2.52 | .577 |
| Nausea and vomiting | 4/12 (33.3%) | 19/66 (28.8%) | 1.24 | .741 |
| Cancer-related fatigue | 0/9 (0.0%) | 23/69 (33.3%) | 0.00 | .052 |
| **Dyspnea / airway obstruction** | **7/10 (70.0%)** | **16/68 (23.5%)** | **7.58** | **.006** |
| Pain due to inflammation or nerve compression | 4/8 (50.0%) | 19/70 (27.1%) | 2.68 | .225 |
| Hypercalcemia of malignancy | 3/4 (75.0%) | 20/74 (27.0%) | 8.10 | .074 |
| Inflammation in hematologic malignancies | 0/0 | 23/78 (29.5%) | — | 1.000 |
| Anorexia and cachexia | 1/10 (10.0%) | 22/68 (32.4%) | 0.23 | .266 |
| **Not stated** | **1/22 (4.5%)** | **22/56 (39.3%)** | **0.07** | **.002** |

## DISCUSSION

Dexamethasone is one of the most used medications in palliative care because of its broad role in managing cancer-related symptoms. This retrospective study represents one of the first comprehensive assessments of dexamethasone prescribing practices in a tertiary palliative care unit in Saudi Arabia. The findings of this study provide clinically useful information regarding the utilisation of dexamethasone for patients with advanced cancer in routine practice, including prescribing patterns, dose escalation or discontinuation, and symptom response documentation. Furthermore, the

study offers insight into how the clinical benefit of dexamethasone may vary according to the symptom being treated. The following discussion interprets these findings in the context of current palliative care evidence and existing approaches to corticosteroid use in advanced cancer care.

The indications identified in our study reflect the broad clinical utility of dexamethasone in palliative care settings. Indications included the use of dexamethasone for neurologic effects such as increased intracranial pressure, cerebral oedema, spinal cord compression, as well as other indications such as nausea and vomiting, dyspnoea, anorexia, fatigue, and pain. These findings are consistent with previous palliative care studies showing that corticosteroids are commonly used for both clearly defined steroid-responsive conditions and generalised symptoms [2]. Neurologic complications and gastrointestinal symptoms remain among the most common indications in this cohort, aligning with current palliative care practice where corticosteroids remain an important component of symptomatic treatment for cerebral oedema, spinal cord compression, and selected nausea syndrome in advanced cancer [14, 15]. In contrast, dexamethasone was also frequently prescribed for non-specific symptoms such as fatigue and anorexia, where evidence supporting sustained benefit remains limited and inconsistent [16]. Collectively, these findings suggest that while dexamethasone continues to play an important role in symptom management, prescribing practices may still partly depend on empiric use in patients with complex and multifactorial symptom burden despite limited high-quality evidence for some indications.

Another clinically relevant finding was that over one-quarter of patients had no clearly documented indication for prescribing dexamethasone. The proportion of undocumented indications observed in this study was like what was reported in previous palliative care research, which may in part reflect differences in documentation based on the lack of standardised symptom assessment and documentation [3-17]. However, undocumented indications were significantly less likely to have a symptom response documented as well. Prescribing dexamethasone without a clear justification may lead clinicians to reassess these patients less frequently and may make it difficult to determine if treatment is effective. Overall, these findings suggest that dexamethasone should be treated as an indication-dependent intervention and its efficacy is likely maximised when treatment is initiated in response to a clearly identified and potentially dexamethasone-responsive mechanism.

The low response rate documented in this study should be considered in light of the fact that the response was based on retrospective chart review rather than a prospective standardised assessment of symptoms. Thus, lack of documentation of improvement may not accurately reflect lack of benefit. It could be due to failure to adequately capture baseline severity, absence of target indication, inconsistent timing of follow-up, or lack of documentation of meaningful change. When assessing the response to dexamethasone prospectively using structured measures of symptoms at baseline and follow-up, a study's findings showed that there was an identifiable effect on symptom distress in advanced cancer patients whose symptoms improved [18]. This prospective follow-up contrasted with routine documentation and illustrates that the treatment effect may be underestimated when retrospective assessment has not been captured. Another study identified variation in indication for prescribing, documentation and review of corticosteroids in palliative care settings in a retrospective review of corticosteroid prescribing[17]. Furthermore, another study also highlighted that variability in corticosteroid prescribing relates to individual clinician judgment, differing rationale for prescribing and inconsistent review leading to potential under-reporting or acknowledgement of treatment benefit [1]. Expanding on this concept, the patient-reported outcome measures improve symptom visibility and enable structured clinical decision-making, although implementation in routine practice remains variable [19]. Therefore, it is possible that the low documented response rate identified in this study reflects both true variability in benefit from dexamethasone and deficiencies in routine documentation and reassessment of symptoms.

Dexamethasone appeared to be generally tolerated in this study, with only reported cases of steroid-induced hyperglycemia and no documented other common side effects such as psychiatric symptoms, gastrointestinal complications or opportunistic infections [20]. While assuring findings, it should be interpreted cautiously because retrospective chart review may underestimate steroid-related adverse effects, particularly insomnia, mood change, delirium and subclinical metabolic complications. Recent evidence suggests that corticosteroid toxicities increased with cumulative dose and duration of exposure[21]. Therefore, the lower burden of adverse event noted in this study may reflect a moderate dosing strategy, short treatment duration or under documentation rather than a complete absence of toxicity.

The median dexamethasone dose in this cohort was 4 mg/day, with more than half of the patients receiving this dose. This finding suggests a relatively conservative dosing pattern, particularly when compared with higher-dose regimens commonly recommended for acute neurologic indications such as symptomatic brain metastases or metastatic spinal cord compression. However, a 4 mg/day dose may be clinically reasonable for selected palliative indications when the goal is short-term symptom relief while limiting corticosteroid exposure. Current evidence supports tailoring dexamethasone dose to the underlying indication and

reducing exposure, when possible, because corticosteroid toxicity is influenced by both dose and duration [21]. Therefore, the predominance of 4 mg/day in this cohort likely reflects a low-dose, symptom-directed prescribing approach, while higher doses remain more appropriate for urgent steroid-responsive conditions such as cerebral oedema or spinal cord compression [22]. The observed dose reduction and tapering practices suggest that dexamethasone was actively reassessed rather than continued uniformly. This is clinically important because corticosteroid benefit in palliative care is often time-limited, while toxicity increases with cumulative exposure. Therefore, tapering to low doses or discontinuing therapy when benefit is unclear reflects a more cautious and symptom-directed prescribing approach.

The high rate of intravenous use is likely attributed to practice patterns as well as the severity of illness of hospitalised patients receiving palliative care. Specifically, IV are often preferred when patients experience dysphagia, impaired gastrointestinal absorption, severe nausea, or acute symptom crises. However, subcutaneous administration is widely used in palliative and end-of-life care when the oral route becomes unreliable. The subcutaneous route is not supported by the institutional formulary where this study was conducted. Prolonged LOS in patients receiving IV dexamethasone likely represents confounding by indication due to the severity of illness. Patients receiving subcutaneous corticosteroids are typically more clinically unstable, more symptomatic, or closer to the end of life. Similar findings have been demonstrated in previous studies using palliative care cohorts in that the use of subcutaneous corticosteroids was more likely due to disease severity rather than effectiveness of treatment [23, 24].

One of the clinically important findings in this study was the strong association between dexamethasone use for dyspnoea and airway obstruction and documented symptomatic response. Patients treated for dyspnoea demonstrated substantially higher odds of improvement both in univariable and multivariable analyses. However, this finding should be interpreted cautiously because of the small number of patients treated for dyspnoea in the study. The small subgroup size increases the risk of sparse-data bias and unstable odds-ratio estimation. Therefore, the multivariable result should be considered exploratory and hypothesis-generating rather than definitive. This finding is clinically plausible because dexamethasone may reduce airway oedema, tumour-related inflammatory swelling, lymphangitic inflammation, or other obstructive processes contributing to breathlessness, but are unlikely to provide consistent benefit when dyspnoea is primarily caused by non-inflammatory mechanisms such as pleural effusion, anaemia, pulmonary embolism, severe deconditioning, or anxiety. The ASCO guideline on dyspnoea in advanced cancer emphasises cause-directed management and recognises corticosteroids as potentially useful when dyspnoea is related to inflammatory or obstructive processes [25]. Similarly, the Cochrane review concluded that systemic corticosteroids are commonly used for cancer-related breathlessness, but the evidence base remains limited and does not support indiscriminate use [26]. More recently, the ABCD randomised trial found that dexamethasone did not significantly improve dyspnoea compared with placebo in an unselected advanced cancer population, reinforcing that the benefit is most likely when patients are selected based on a plausible steroid-responsive mechanism [27]. Therefore, in the present study, the higher response observed among patients treated for dyspnoea or airway obstruction may reflect the appropriate selection of patients whose breathlessness was more likely driven by inflammatory or obstructive pathology.

The absence of a relationship between dexamethasone response and hospital length of stay is clinically relevant. These findings reinforce the principle that corticosteroids in palliative care primarily function as symptom-modifying agents rather than survival-prolonging interventions [7]. This distinction is essential because the therapeutic objective in advanced cancer is often maximising comfort, function, and quality of life rather than altering disease trajectory [28]. The weak and non-significant correlation between corticosteroid dose and hospitalisation duration further supports this interpretation.

## IMPLICATIONS AND RECOMMENDATIONS

The findings suggest that dexamethasone should be used as an indication-directed intervention rather than a general supportive medication in palliative care. Clinicians should clearly identify the target symptom, consider whether the underlying mechanism is likely to be corticosteroid-responsive, and reassess response within a defined timeframe.

The high proportion of undocumented indications highlights the need for better prescribing documentation. Each dexamethasone prescription should include the indication, baseline symptom severity, planned reassessment, and criteria for continuation, tapering, or discontinuation. This is important because unclear indications may reduce the likelihood of consistent follow-up and make treatment effectiveness difficult to evaluate.

The modest documented response rate also supports the use of standardised symptom assessment tools, such as ESAS or AQSA, in routine palliative care practice. These tools may help distinguish true non-response from incomplete documentation and improve evaluation of the dexamethasone benefit.

The predominance of low-dose prescribing suggests a cautious approach that may reduce

corticosteroid-related toxicity. However, dose selection should remain individualised, with higher doses reserved for urgent steroid-responsive indications such as cerebral oedema or spinal cord compression.

Finally, the association between dexamethasone use for dyspnoea or airway obstruction and documented response should be considered exploratory because of the small subgroup size. Future prospective multicentre studies are needed to confirm indication-specific response patterns, define optimal dosing, evaluate route-of-administration practices, and assess adverse effects systematically.

### Limitations

This study has several limitations. First, its retrospective design made the analysis dependent on the completeness of routine clinical documentation. Missing indications, inconsistent reassessment, and incomplete adverse-effect reporting may have affected the observed response and safety findings. Second, symptom response was based on documented clinical improvement rather than standardised prospective assessment using validated tools such as ESAS or IPOS. Therefore, the absence of a documented response should not be interpreted as a definite lack of clinical benefit. Third, this was a single-centre inpatient study in a tertiary palliative care setting, which may limit generalizability to outpatient, hospice, community, or other institutional settings. Fourth, the sample size was relatively small, particularly for subgroup analyses. The dyspnoea/airway obstruction finding should therefore be interpreted as exploratory and hypothesis-generating rather than definitive. Finally, confounding by indication is possible. Patients receiving IV dexamethasone or higher doses may have been more clinically unstable, which limits causal interpretation of route, dose, and length-of-stay findings.

## CONCLUSION

This study provides one of the first real-world evaluations of dexamethasone prescribing practice in an inpatient palliative care setting in Saudi Arabia. Dexamethasone was used for a broad range of cancer-related symptoms, with dosing and route of administration largely reflecting symptom burden, clinical acuity, and local practice patterns. The findings suggest that dexamethasone may be most clinically useful when prescribed for clearly defined, potentially corticosteroid-responsive indications, particularly neurologic symptoms and dyspnoea or airway obstruction.

The modest documented response rate and high proportion of undocumented indications highlight the need for clearer prescribing rationale, standardised symptom assessment, and structured reassessment after initiation. Although dexamethasone appeared generally well-tolerated, adverse effects may have been underestimated due to the retrospective design. Future prospective studies using validated symptom assessment tools are needed to confirm indication-specific benefit, optimise dosing strategies, and strengthen evidence-based corticosteroid use in palliative care.

**Declaration of Conflicting Interests:** The authors declare no potential conflicts of interest regarding this article's authorship and/or publication.

**Funding Information:** This research received no grant from public, commercial, or not-for-profit funding agencies.

### Ethics Procedures

This study received ethics clearance from the Institutional Board Review of King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia, in June, 2025 (Reference # 2251294). A waiver for informed consent was granted.

### Authors' Contribution

FA: Study design, Data collection, Data analysis and interpretation, Manuscript redaction, and coordination of the research team.
GA: Data analysis and interpretation, Manuscript redaction and review
SC: Study design, Data collection, Manuscript review, and coordination of the research team.
MA: Data collection, Manuscript review
MS: Data collection, Manuscript review
RE: Data collection, Manuscript review
FA: Data collection, Manuscript review
MA: Study design, Data collection, Manuscript redaction, and coordination of the research team.

## REFERENCES

1. Denton A, Shaw J. Corticosteroids in palliative care - perspectives of clinicians involved in prescribing: a qualitative study. BMC Palliative Care. 2014 2014/11/18;13(1):50.
2. Hardy J, Haywood A, Rickett K, et al. Practice review: Evidence-based quality use of corticosteroids in the palliative care of patients with advanced cancer. Palliative Medicine. 2021;35(3):461-472.
3. Gannon C, McNamara P. A Retrospective Observation of Corticosteroid Use at the End of Life in a Hospice. Journal of Pain and Symptom Management. 2002;24(3):328-334.
4. Lundström SH, Fürst CJ. The use of corticosteroids in Swedish palliative care. Acta Oncologica. 2006 2006/01/01;45(4):430-437.
5. Pilkey J, Daeninck PJ. A retrospective analysis of dexamethasone use on a Canadian palliative care unit. Progress in Palliative Care. 2008 2008/04/01;16(2):63-68.
6. Miura T, Okizaki A, Hasuo H, et al. Dexamethasone 8 mg for Cancer-Related Fatigue in Inpatients with Advanced Cancer Undergoing Palliative Care: A Multicenter Phase II Trial. Palliative Medicine Reports. 2021;2(1):pmr.2021.0053.

7. Yennurajalingam S, Bruera E. Do Patients Benefit from a Trial of Corticosteroids at the End of Life? Current Treatment Options in Oncology. 2022 2022/06/01;23(6):796-805.
8. Shih A, Jackson KC. Role of Corticosteroids in Palliative Care. Journal of Pain & Palliative Care Pharmacotherapy. 2007 2007/01/01;21(4):69-76.
9. Mercadante S, Fulfaro F, Casuccio A. The use of corticosteroids in home palliative care. Supportive Care in Cancer. 2001 2001/07/01;9(5):386-389.
10. Hardy JR, Rees E, Ling J, et al. A prospective survey of the use of dexamethasone on a palliative care unit. Palliative Medicine. 2001;15(1):3-8.
11. Jaward LR, O'Neil TA, Marks A, et al. Differences in Adverse Effect Profiles of Corticosteroids in Palliative Care Patients. American Journal of Hospice and Palliative Medicine®. 2019;36(2):158-168.
12. Matsuo N, Morita T, Matsuda Y, et al. Predictors of Delirium in Corticosteroid-Treated Patients with Advanced Cancer: An Exploratory, Multicenter, Prospective, Observational Study. Journal of Palliative Medicine. 2017;20(4):352-359.
13. Alzahrani HA. Rising cancer burden among older adults in Saudi Arabia: A longitudinal analysis of incidence rates by demographics, 2013-2022. Saudi Med J. 2025 Dec;46(12):1463-1471.
14. Berner-Sharma JM, Bausewein C, Rémi C. Management of Nausea and Vomiting in Palliative Care – Real Life Data From a Palliative Care Unit in Germany. American Journal of Hospice and Palliative Medicine®. 2025;42(12):1304-1313.
15. Kostaras X, Cusano F, Kline GA, et al. Use of Dexamethasone in Patients with High-Grade Glioma: A Clinical Practice Guideline. Current Oncology. 2014;21(3):493-503.
16. Yennurajalingam S, Frisbee-Hume S, Palmer JL, et al. Reduction of Cancer-Related Fatigue With Dexamethasone: A Double-Blind, Randomized, Placebo-Controlled Trial in Patients With Advanced Cancer. Journal of Clinical Oncology. 2013;31(25):3076-3082.
17. Denton A, Shaw J. Corticosteroid prescribing in palliative care settings: a retrospective analysis in New Zealand. BMC Palliative Care. 2014 2014/03/08;13(1):7.
18. Bausewein C, Daveson BA, Currow DC, et al. EAPC White Paper on outcome measurement in palliative care: Improving practice, attaining outcomes and delivering quality services – Recommendations from the European Association for Palliative Care (EAPC) Task Force on Outcome Measurement. Palliative Medicine. 2016;30(1):6-22.
19. Antunes B, Harding R, Higginson IJ, et al. Implementing patient-reported outcome measures in palliative care clinical practice: A systematic review of facilitators and barriers. Palliative Medicine. 2014;28(2):158-175.
20. Hatano Y, Matsuoka H, Lam L, et al. Side effects of corticosteroids in patients with advanced cancer: a systematic review. Supportive Care in Cancer. 2018 2018/12/01;26(12):3979-3983.
21. An AW, Chen X, Urbauer DL, et al. Impact of Dosing and Duration of Dexamethasone on Serious Corticosteroid-Related Adverse Events. Journal of Pain and Symptom Management. 2024 2024/01/01/;67(1):59-68.
22. Skeoch GD, Tobin MK, Khan S, et al. Corticosteroid Treatment for Metastatic Spinal Cord Compression: A Review. Global Spine Journal. 2017;7(3):272-279.
23. Bartz L, Klein C, Seifert A, et al. Subcutaneous Administration of Drugs in Palliative Care: Results of a Systematic Observational Study. Journal of Pain and Symptom Management. 2014 2014/10/01/;48(4):540-547.
24. Masman AD, van Dijk M, Tibboel D, et al. Medication use during end-of-life care in a palliative care centre. International Journal of Clinical Pharmacy. 2015 2015/10/01;37(5):767-775.
25. Hui D, Bohlke K, Bao T, et al. Management of Dyspnea in Advanced Cancer: ASCO Guideline. Journal of Clinical Oncology. 2021;39(12):1389-1411.
26. Haywood A, Duc J, Good P, et al. Systemic corticosteroids for the management of cancer-related breathlessness (dyspnoea) in adults. Cochrane Database of Systematic Reviews. 2019 (2).
27. Hui D, Puac V, Shelal Z, et al. Effect of dexamethasone on dyspnoea in patients with cancer (ABCD): a parallel-group, double-blind, randomised, controlled trial. The Lancet Oncology. 2022;23(10):1321-1331.
28. Ferrell BR, Temel JS, Temin S, et al. Integration of Palliative Care Into Standard Oncology Care: American Society of Clinical Oncology Clinical Practice Guideline Update. Journal of Clinical Oncology. 2017;35(1):96-112.