



Characteristics and Healing Duration of Pressure Injuries in Adult Cancer Patients: A Retrospective Chart Review

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ABSTRACT

Background: Pressure injuries among cancer patients remain a significant concern for both patients and healthcare providers. While previous studies have examined prevalence, incidence, prevention strategies, and management interventions, the specific characteristics and healing duration of pressure injuries in oncological populations remain underexplored. **Purpose:** This study aims to describe the characteristics of pressure injuries among cancer patients and to estimate the healing duration across stages I–IV and unstageable categories. **Methods:** A retrospective chart review was conducted at a specialized oncology center. Medical records of 155 eligible patients were retrieved. Data collection included demographic and clinical characteristics, pressure injury assessments upon admission using the Pressure Ulcer Scale for Healing (PUSH) score, and documentation of incidence during hospitalization. **Results:** A total of 303 pressure injuries achieved complete healing. The buttock was the most frequent anatomical site (49.8%), followed by the sacro-coccygeal region (31.7%). Most cases were stage I (49.2%) and stage II (36.9%), with 96.4% being home-acquired. The median healing duration across all sites and stages was 13 days (IQR = 20; range = 182), the mean was 22.5 days (SD = 24.5). Unstageable injuries required the longest healing period (mean 99.1 days, SD = 52.8), compared with stage I (11.1 days, SD = 8.6), stage II (23.1 days, SD = 15.6), and stage III (55 days, SD = 26.4). Healing duration varied by anatomical site, with vertebral injuries taking the longest time and shoulder injuries the shortest time. **Conclusion:** Healing duration differs by stage and anatomical site. The predominance of home-acquired injuries highlights the need for strengthened community-based prevention and management strategies. **Implications for Nursing:** Nurses should anticipate variability in healing times, recognize distinct injury characteristics, and apply this knowledge to improve prevention, management, and caregiver education.

Keywords: Pressure injuries, Healing duration, Oncology.

What does this paper add?

1. This study enhances the understanding of the characteristics of pressure injuries among cancer patients, highlighting their distribution by stage, anatomical location, and acquisition source.
2. The study reveals that most injuries are home-

acquired, emphasizing the urgent need for stronger community-based prevention and care strategies.

Introduction

Pressure injuries (PIs) remain a major global health concern, affecting patient outcomes, quality of life, and

placing a considerable burden on healthcare systems. PIs are defined as localized damage to the skin and/or underlying tissue, most commonly occurring over bony prominences or under medical devices, resulting from pressure, friction, or shear forces. This definition reflects updated terminology and classification introduced in the International Guideline for Pressure Injury Prevention and Treatment (National Pressure Injury Advisory Panel (NPIAP), European Pressure Ulcer Advisory Panel (EPUAP), Pan Pacific Pressure Injury Alliance (PPPIA), 2019), building on earlier descriptions by Edsberg et al. (2016).

Cancer patients are at increased risk of developing PIs due to factors, such as weight loss, compromised nutritional status, disease progression, and anticancer treatments including chemotherapy and radiotherapy (Kim et al., 2023). Both disease characteristics and treatment modalities contribute significantly to this risk (Lima et al., 2021). During the treatment journey, patients often experience decreased mobility and altered skin integrity, particularly during complex surgeries, prolonged chemotherapy, radiotherapy complications, and end-of-life palliative care (Ferris et al., 2019).

The incidence of PIs among hospitalized non-cancer patients has been reported at 12% (Afzali Borojeny et al., 2020), rising to 20.4% in orthopedic patients (Jiao et al., 2022) and 28.8% in spinal cord injury patients (Xu et al., 2025). Among hospitalized cancer patients, incidence was 17.3% and prevalence 25.5% (Jakobsen et al., 2020). In Jordan, prevalence was 15.5% (Aljezawi & Tubaishat, 2018). Unlike earlier work, which focused primarily on prevalence and preventive interventions, the present study extends the literature by describing the detailed characteristics of pressure injuries and estimating their healing duration across stages and anatomical sites. This emphasis on healing trajectories provides novel insights into patient outcomes and highlights the predominance of home-acquired injuries, underscoring the need for strengthened community-based prevention and management strategies.

Comprehensive skin assessments are typically performed upon admission, with reassessments conducted in cases of clinical deterioration. These evaluations often utilize the Braden Scale, a validated tool that measures risk across six domains: sensory perception, moisture, activity, mobility, nutrition, and friction/shear (Huang et al., 2021). Regular assessment is essential to evaluate the effectiveness of prevention

and management strategies (Padula et al., 2019). Specialized wound care teams play a vital role in prevention, early identification, and management, with nurses leading individualized care plans that incorporate evidence-based practices, such as appropriate dressing selection, repositioning strategies, nutritional support, and ongoing monitoring (Chaboyer et al., 2024; Neill & Martin, 2024; Sili et al., 2023; Wong et al., 2024).

Wound healing is a complex, dynamic process consisting of clotting, inflammation, proliferation, and maturation, ultimately resulting in scar formation (Enoch & Leaper, 2008). Healing duration varies widely depending on wound stage, disease progression, patient health status, management strategies, resource availability, and provider expertise (Heerschap et al., 2019). Previous studies have reported variable healing times: Stage II injuries generally heal within 12–22 days (Palese et al., 2015; Seo et al., 2022), while stage III, IV, and unstageable PIs often require several weeks. Wound healing trajectories constructed for 211 patients enrolled in eight randomized clinical trials showed that 81% of patients reached 90% healing within 112 days, yet only 17% achieved complete closure, with projecting up to 110 weeks for total healing (Payne et al., 2011). These trials, however, focused on advanced-stage PIs and did not systematically examine healing duration across all PI stages or anatomical sites. Moreover, oncology populations were not specifically studied. Our study addresses this gap by describing PI characteristics and estimating healing duration among cancer patients. Although data on prevalence, incidence, and prevention is available, the characteristics and healing duration of PIs among cancer patients remain unclear and understudied. This highlights the importance of detailed assessment—including staging, anatomical distribution, and risk factor evaluation—to better understand PIs in vulnerable populations (Jakobsen et al., 2020; Kim et al., 2023; Xu et al., 2025). However, no study has systematically examined healing duration in oncology populations. Addressing this gap is significant, as understanding healing trajectories will inform clinical decision-making, optimize nursing interventions, and improve patient outcomes in oncology care.

Aim

The study aims to describe the characteristics of PIs among cancer patients and estimate the healing duration of PIs from stage I to stage IV including unstageable

categories among cancer patients using the Pressure Ulcer Scale for Healing (PUSH) tool.

Methods

Design

A retrospective chart review design was employed. Patient charts were retrieved and analyzed to gather in-depth information about PIs among cancer patients and to estimate the duration time required for complete healing, measured from admission to documented resolution. This design enables the systematic evaluation of patient records to identify PI characteristics and healing duration in real-world clinical practice.

Setting

The study was conducted at a tertiary oncology center in Jordan established to provide comprehensive oncological treatment. The center comprises 364 beds across medical, surgical, palliative, and intensive care units. It is equipped with advanced medical technologies, and oncology care is delivered by a multi-disciplinary team of oncologists and specialized nurses who collaborate to ensure safe, evidence-based cancer care. The medical ward admits cancer patients undergoing chemotherapy and those requiring management of treatment-related complications. The surgical ward provides care for patients in the pre- and post-operative phases of oncological procedures. The medical-surgical ward accommodates both medical oncology and surgical patients.

Sampling

A purposive sampling strategy was used, including all adult cancer patients who either developed at least one pressure injury during hospitalization or were admitted with a pre-existing, home-acquired pressure injury. Eligible patients encompassed a range of cancer types and stages and were admitted for medical, surgical, or critical care. Exclusion criteria included patients who had undergone bone marrow transplantation, those receiving palliative care, individuals with major orthopedic surgeries, and those diagnosed with skin malignancies. These patients were excluded to maintain a homogeneous sample and to avoid potential confounding of pressure injury risk. As per center protocol, all patients are systematically screened for pressure injuries (PIs) upon admission. Any identified cases are documented through

the hospital's reporting system, and PIs that develop during hospitalization are likewise reported. A dedicated tracking database supports ongoing monitoring, which is subsequently reviewed by the research team to identify study samples. For each case, the Pressure Ulcer Scale for Healing (PUSH) tool was employed to evaluate and document the progression and healing of PIs. A total of 30,349 patient medical records were reviewed. Of these, 30,194 were excluded for the following reasons: 29,892 patients did not have pressure injuries, 157 were receiving palliative care, 70 had died, 47 were discharged home before complete healing, 14 had undergone major surgeries, 4 had received bone marrow transplantation, and 10 had missing data. Consequently, the final study sample comprised 155 patients.

Instruments

The research team developed a data collection sheet consisting of three sections: the first section captured participants' demographics and clinical characteristics; the second focused on data related to pressure injury characteristics, and healing duration; and the third included assessments using the PUSH tool at both admission and discharge. The Pressure Ulcer Scale for Healing (PUSH Tool) is a validated clinical instrument developed by the National Pressure Injury Advisory Panel (NPIAP) to monitor the healing trajectories of PIs. It assesses three key wound characteristics: surface area, exudate amount, and tissue type. Each parameter is scored individually, and the sum yields a total PUSH score, with lower scores indicating wound improvement. Each component is assigned a score based on defined criteria: surface area is scored from 0 to 10, exudate amount from 0 to 3, and tissue type from 0 to 4. These scores are summed up to generate a total PUSH score ranging from 0 to 17, where lower scores indicate greater healing. This scoring system allows wound nurses to track wound status consistently over time and supports objective evaluation of treatment effectiveness. The tool is widely used in clinical settings due to its simplicity, reliability, and sensitivity to changes in wound status over time. The PUSH tool demonstrates strong inter-rater reliability ($\kappa \approx 0.80\text{--}0.90$) and has been successfully applied beyond pressure ulcers, confirming its good reliability and predictive validity for monitoring wound healing (Smet et al., 2021; Stotts et al., 2001; Thomas et al., 1997).

Data Collection Procedure

A retrospective chart review was conducted for all adult patients who were admitted between January 2017 and December 2019 and met the inclusion criteria. The extraction process was conducted by a trained research team member, with periodic cross-verification against source documents and consultation with senior investigators to resolve ambiguities and ensure data accuracy. A standardized data extraction form was developed and tested prior to data collection to ensure consistency. These procedures minimized bias and enhanced the reliability of the extracted data. To maintain confidentiality and ensure data privacy, only members of the data-collection research team were permitted to access completed data sheets. All records were anonymized using coded identifiers and securely stored on a password-protected computer system.

Ethical Considerations

The Institutional Review Board (IRB) at King Hussein Cancer Center reviewed and approved the study (Approval No. 21-KHCC-097). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee. For this retrospective study based on clinical practice data, the requirement for written informed consent was waived by the ethics committee.

Reporting Guidelines

This retrospective chart review was conducted in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist, as recommended by the EQUATOR Network, to ensure transparent and comprehensive reporting of observational research (Cevallos & Egger, 2014).

Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS), version 21. To address the study objectives, descriptive statistical methods were applied. Demographic and clinical characteristics were summarized using measures appropriate to their level of measurement, including means and standard deviations for continuous variables and frequencies and percentages for categorical variables. Because healing duration data was positively skewed, medians and interquartile ranges (IQRs) were reported as the primary summary statistics, with means and standard deviations provided for descriptive comparison with previous studies. Missing data was managed through case-wise deletion, ensuring that analyses were conducted only on complete records.

Results

The study sample comprised 155 adult cancer patients who met the inclusion criteria and developed at least one PI. Across this sample, a total of 303 PIs were documented as completely healed. Most participants were female (71%), with a mean age of 62.1 years ($SD = 14.9$). The mean Body Mass Index (BMI) was 30.3 ($SD = 6.7$). Length of hospital stay ranged from 6 to 136 days, with a mean of 30.9 days ($SD = 24.3$) and a mode of 12 days. Most patients were not receiving active chemotherapy (86.5%) or radiotherapy (82.6%) during their admission, while only 5.2% were undergoing concurrent chemoradiotherapy. A substantial proportion of patients (61.3%) had a history of diabetes mellitus. Additionally, 59.4% of patients were free from peripheral edema, and 60% had an oxygen saturation level above 90%. Nearly a half of the participants with healed PIs (48.4%) were admitted to medical-surgical units (Table 1).

Table 1. Characteristics of participants with healed PIs (n=155)

Variable		Mean	SD
Age (years)		62.1	14.9
Body Mass Index (kg/m ²)		30.3	6.7
Length of Stay (days)		30.9	24.3
Variable		N	%
Gender	Female	110	71.0
	Male	45	29.0
Chemotherapy	Yes	21	13.5
	No	134	86.5

Radiotherapy	Yes	27	17.4
	No	128	82.6
Concurrent	Yes	8	5.2
	No	147	94.8
Diabetes Mellitus (DM)	Yes	95	61.3
	No	60	38.7
Oedema	Yes	63	40.6
	No	92	59.4
Oxygenation	=>90%	93	60.0
	<90%	62	40.0
Units	Med-Surg	75	48.4%
	Medical	31	20.0%
	Adult	30	19.3%
	Surgical	19	12.3%

Note. PI = pressure injury; BMI = body mass index; Concurrent = Concurrent Chemoradiotherapy; DM = diabetes mellitus; LOS = length of stay. Oxygenation values represent arterial oxygen saturation. Med-Surg Oncology = mixed medical-surgical oncology ward; ICU = intensive care unit.

Characteristics of Healed PIs

The most reported site for healed PIs was the buttocks, accounting for 151 PIs (49.8%), followed by the sacro-coccygeal region with 96 PIs (31.7%). PIs located on the ears represented 7.3%, while those on the heels comprised 3.6% of PIs. In terms of staging, most healed PIs were classified as stage I (n = 149; 49.2%) and stage II (n = 112; 36.9%), whereas deep tissue injuries (DTIs) constituted the least healed cases, with only three cases (1%). Additionally, most healed PIs (n = 292; 96.4%) were home-acquired prior to hospital

admission (Figure1). The median of the initial Pressure Ulcer Scale for Healing (PUSH) score was 10.0 (IQR = 2.0; range = 12.5) and the mean was 9.2 (SD = 2.2). The median healing duration time across all sites and stages was 13 days (IQR = 20; range = 182) and the mean was 22.5 (SD = 24.5) measured from admission to complete healing (Table 2). Data was positively skewed; therefore, the median and interquartile range (IQR) are presented to reflect central tendency. The mean and standard deviation are also reported to facilitate comparison with prior literature.

Table 2. PUSH score and healing time of healed PIs across PI sites and stages (n = 303)

Variable	Median (IQR)	Mean (SD)	Range
PUSH Initial	10.0 (2)	9.2 ((2.2)	12.5
Healing Time (days)	13.0 (20)	22.5 (24.5)	182

Note. PI = pressure injury; PUSH = Pressure Ulcer Scale for Healing. Healing time reported in days. IQR = Interquartile Range.

Laboratory and Clinical Parameters of Healed PIs

The participants had an absolute neutrophil count (ANC) greater than 1000/mm³, with a mean ANC of 5121.8 (SD = 3444.2). The mean hemoglobin level was 10.5 g/dL (SD = 2.0). Coagulation profiles indicated generally normal parameters, including platelet count (M = 195.7 ×10³/μL, SD = 130.2), prothrombin time (PT) (M = 15.6 seconds, SD = 3.9), partial thromboplastin

time (PTT) (M = 38.3 seconds, SD = 9.9), and international normalized ratio (INR) (M = 1.2, SD = 0.3). Nutritional status was evaluated through serum albumin levels, which showed a mean of 3.2 g/dL (SD = 0.7), indicating generally adequate nutrition. Renal function, measured by creatinine levels, had a mean value of 1.2 mg/dL (SD = 1.1) (Table 3).

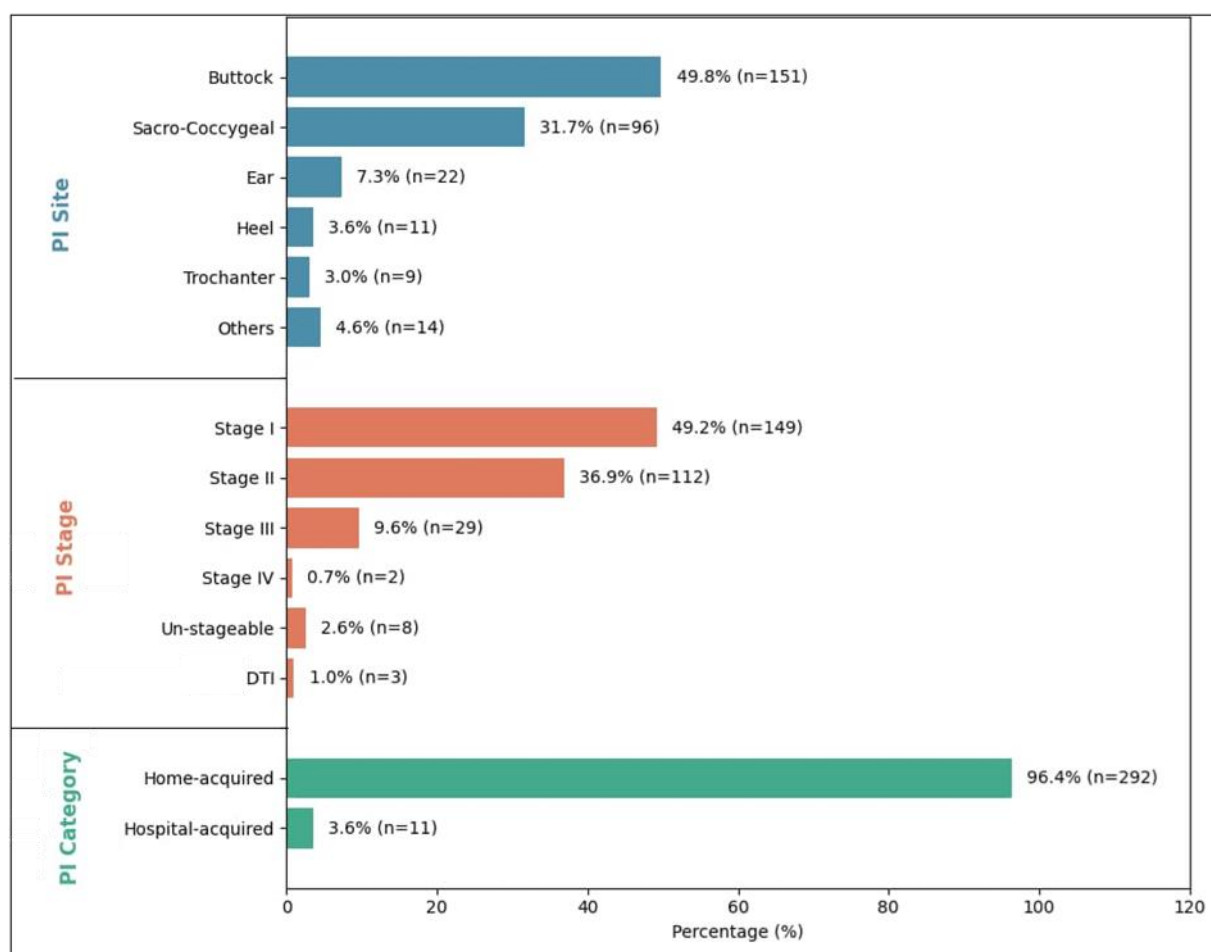


Figure 1. Characteristics of healed pressure injuries (PIs): sites, stages & category (n=303)

Note. PI= pressure injury; DTI= deep tissue injury; Others= shoulder, Scapula, Occipital, and vertebrae. Stages classified according to National Pressure Ulcer Panel (NPUAP) guidelines.

Table 3. Physiological parameters of participants with healed PIs (n = 155)

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
Absolute Neutrophil Count (ANC)	5121.8	3444.2	0 – 14620.1
Hemoglobin (Hgb)	10.5	2.0	6.0 – 16.0
Platelets (Plts)	195.7	130.2	7.0 – 598.0
Prothrombin time (PT)s	15.6	3.9	10.0 – 32.2
Partial thromboplastin time (PTT)s	38.3	9.9	24.0 – 77.5
International normalized ratio (INR)	1.2	.3	.9 – 3.1
Albumin (Alb)	3.2	.7	1.3 – 4.8
Creatinine (Cr)	1.2	1.1	.1 – 8.5

Note. PI = pressure injury; ANC = absolute neutrophil count; Hgb = hemoglobin; Plts = platelets; PT = prothrombin time; PTT = partial thromboplastin time; INR = international normalized ratio; Alb = albumin; Cr = creatinine

Healing Time of Pressure Injury Stages

The duration of complete healing for pressure injuries ranged from 13 to 182 days. Across all anatomical sites and stages, the median healing time was 13 days (IQR = 20), while the mean healing time was 22.5 days (SD = 24.5), measured from hospital admission to documented complete healing. Healing duration demonstrated substantial variation by pressure injury (PI) anatomical location. Vertebral pressure injuries exhibited the longest healing times, with a median duration of 19.0 days and a mean of 71.3 days (SD = 98.5), followed sequentially by occipital injuries,

ears, buttocks, heels, and sacro-coccygeal regions. In contrast, pressure injuries located on the shoulders demonstrated the shortest healing duration, with a mean healing time of 3 days.

When stratified by injury stage, unstageable pressure injuries required the longest time to heal, with a median healing duration of 98.5 days (IQR = 75) and a mean of 99.1 days (SD = 52.8). This was followed by deep tissue injuries, stage IV, stage III, and stage II pressure injuries. Stage I pressure injuries healed most rapidly, with a median duration of 9 days (IQR = 6) and a mean healing time of 11.1 days (SD = 8.6) (Table 4).

Table 4. Healing time (days) based on PI site & stage for healed pressure injuries (n = 303)

Variable	Classification	n	Median (IQR)	M (SD)	Range
PI Site	Buttock	151	14.0 (24.0)	23.6 (23.5)	127
	Sacro-Coccygeal	96	12.0 (14.0)	19.2 (20.6)	127
	Ear	22	10.0 (64.0)	29.1 (31.7)	98
	Heel	11	14.0 (6.0)	19.5 (16.7)	59
	Trochanter	9	11.0 (21.0)	19.2 (20.2)	58
	Shoulder	2	-	3.0 (-)	-
	Occipital	1	-	30.0 (-)	-
	Thigh	2	-	8.0 (-)	-
	Flank	3	9.0 (-)	17.0 (13.8)	24.0
	Vertebrae	3	19.0 (-)	71.3 (98.5)	175
	Scapula	3	15.0 (-)	22.7 (20.6)	39
PI Stage	Stage I	149	9.0 (6.0)	11.1 (8.6)	67.0
	Stage II	112	19.0 (20.0)	23.1 (15.6)	99.0
	Stage III	29	57.0 (36.0)	55.0 (26.4)	92.0
	Stage IV	2	77.5 (-)	77.5 (-)	49.0
	Un-stageable	8	98.5 (75.0)	99.1 (52.8)	155.0
	Deep Tissue Injury DTI	3	11.0 (-)	82.3 (0)	0

Note. PI = pressure injury; PUSH = Pressure Ulcer Scale for Healing. Healing time reported in days; stage classification follows NPUAP guidelines.

Discussion

Our study provides valuable insight into the healing duration of PIs among cancer patients, a population that remains underrepresented in wound care literature. The study reported a mean healing duration of 22.5 days across all pressure injury stages and anatomical sites. This period was slightly longer than the 17.6-day mean healing duration previously documented in acute

general hospital populations (Seo et al., 2022). To understand this result, it is important to note that the average healing duration observed in our study may in fact be longer than reported, since the exact onset of PIs prior to hospital admission was not available in the patient medical records. Healing time was therefore calculated from admission to documented resolution rather than from the actual occurrence of the PIs. Our

study showed healing durations of 23.1, 99 and 82.3 days for stage II, unstageable and deep tissue injuries, respectively, underscoring the complexity of wound healing in cancer patients (Levine, 2023). In our study, 61.3% of patients were diagnosed with diabetes, a comorbidity that may have contributed to prolonged healing times, particularly in more severe PI stages (Alfonso et al., 2019). Prolonged healing duration may also be attributable to variability in adherence to evidence-based pressure injury prevention and management practices, particularly routine repositioning. Evidence from Jordanian critical care nursing indicates that adherence to pressure injury prevention guidelines is frequently sub-optimal, the absence of institutional prevention policies contributing to inconsistent implementation, which may negatively influence healing trajectories (Alalawneh et al., 2025).

The study identified the lower back specifically the buttock and sacro-coccygeal region as the most frequent anatomical sites for PIs. This finding is consistent with data from acute care facilities in the United States, where these regions also demonstrate the highest prevalence of PIs (VanGilder et al., 2021). On the other hand, most home-acquired PIs were classified as stage I and stage II. Consistent with our findings, a previous study has also reported that most community acquired PIs tend to be in the early stages highlighting similar characteristics of early-stage injury upon admission from home settings (Kirkkand-Khyn et al., 2019). This trend may reflect limited awareness or delayed recognition of early-stage injuries among caregivers in the home setting, underscoring the need for improved education, early intervention strategies to prevent progression to more severe stages and enhance the role of the community health programs (Hourani, 2023).

The laboratory and clinical parameters observed in our study reflect a generally stable systemic profile in patients who are likely supported for recovery. The mean absolute neutrophil count was well above the threshold for adequate immune function, suggesting preserved host defense capacity. Although hemoglobin levels indicated mild anemia, this did not appear to hinder healing outcomes. Coagulation indices, including platelet count, PT, PTT, and INR, were within normal ranges, pointing to intact hemostatic balance. Nutritional status, as reflected by serum albumin, was adequate though slightly reduced, emphasizing the relevance of protein availability for tissue repair. Renal

function, measured by creatinine, was stable and within acceptable limits. In contrast, another study described a different clinical scenario, with a substantial proportion of patients experiencing malnutrition and many progressing to poor outcomes (Moreira et al., 2020). These findings suggest that common comorbidities, such as hypertension, diabetes, nutritional, and neuropathy, along with laboratory changes, such as hemoglobin, coagulation, and kidney function are key factors in pressure injury healing, highlighting the importance of maintaining overall physiological stability to support PI repair.

The study revealed that most participants presented with community-acquired PIs upon admission. This observation is consistent with previous research, which reported that 58.1% of patients developed PIs during home care (ALFadhlah et al., 2024). The predominance of home-acquired PIs sheds light on the community-based prevention strategies, particularly those assessing the commitment of both patients and caregivers to PI prevention and treatment at home (Bottega et al., 2023). In the context of Jordan, these findings are influenced by several socio-economic and healthcare system challenges. While home care nursing services are available, many families are unable to access them due to financial constraints. The cost of specialized equipment and preventive supplies present an additional burden, often making essential care unattainable (Yussuf Abuelhaija et al., 2023). Another contributing factor may be inadequate education provided to patients and their families regarding PIs prevention and early intervention. Without sufficient knowledge or training, caregivers may fail to recognize early warning signs or apply basic preventive practices (Jafari et al., 2021).

Limitations

This study has several strengths, including the use of a standardized and validated assessment tool (PUSH), which enhanced reliability, and a structured data extraction process that minimized bias. Additionally, the retrospective design allowed for the analysis of real-world clinical data across multiple years, providing valuable insights into wound healing in routine practice. However, our study has several limitations that should be acknowledged. First, due to its retrospective design, data collection was limited to existing documentation in patient charts. As a result, inconsistencies or missing entries may have affected the accuracy and

completeness of the data. Second, the study was conducted at a single oncology center, which may limit the generalizability of findings to broader oncology populations. Institutional protocols, staffing expertise, and patient characteristics may differ from those at other hospitals. Third, because this study focused only on completely healed PIs, it may have excluded patients with prolonged or non-healing wounds, potentially underestimating true healing durations.

Data regarding the onset of pressure injuries was not available, as patients were screened upon admission and onset was not routinely documented in the medical record. Consequently, healing duration was measured from admission rather than from the actual onset of injury, restricting differentiation between hospital-acquired and home-acquired injuries. A small proportion of study population developed PIs during hospitalization, and onset data for these cases was available and included in the analysis; sub-group comparisons were not reported due to the limited sample size, which precluded meaningful statistical interpretation. In addition, no information was available regarding wound management strategies or the type of dressings used prior to admission, limiting the ability to account for variability in pre-admission care that may have influenced healing trajectories. It is also noteworthy that most of the sample presented on admission with early-stage PIs, which may have influenced overall healing duration and characteristics observed. These limitations highlight the need for prospective longitudinal studies with standardized documentation of both injury onset and wound care practices to better understand healing outcomes in adult cancer patients.

Implications for Nursing

This study provides baseline observations on healing time differences across anatomical sites and stages of pressure injuries (PIs) in cancer patients. To translate these findings into nursing practice, several actionable strategies are recommended. First, nurses should integrate stage-specific healing expectations into care planning, recognizing that advanced and unstageable PIs require prolonged recovery and closer monitoring. Second, prioritization of high-risk anatomical sites, such as the buttocks and sacro-coccygeal region should guide preventive interventions, including repositioning schedules, use of support surfaces, and early wound assessment. Third, the predominance of home-acquired

PIs underscores the need for extending nursing practice beyond hospital settings through structured caregiver education, community-based interventions, and follow-up support. Training programs should emphasize early detection, proper repositioning techniques, wound care basics, and monitoring of high-risk sites. Finally, collaboration with policymakers and healthcare institutions is essential to establish accessible community-based wound care services, supported by funding and insurance coverage for extended home visits. By linking descriptive findings to proper assessment, targeted prevention, individualized management, and system-level support, these recommendations provide practical guidance for improving patient outcomes and reducing the burden of PIs in oncology care.

Conclusion

Our study provides baseline observations on the variable characteristics and healing durations of pressure injuries in adult cancer patients. Descriptive PI characteristics indicated that unstageable and deeply located injuries, such as those on the vertebrae and occipital region, tended to require longer healing times, whereas stage I injuries and those located on the shoulder appeared to heal more rapidly. The high prevalence of home-acquired PIs underscores critical gaps in home-based care for oncology patients. These findings highlight the importance of timely detection, targeted intervention, and caregiver education to reduce the burden of PIs in this vulnerable population.

Data Availability

The authors are committed to providing access to the raw data and supporting materials upon reasonable request, ensuring that the research is open and verifiable.

Ethics Approval

This study was reviewed and approved by the Institutional Review Board (IRB) at King Hussein Cancer Center (Approval No. 21-KHCC-097). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. For this retrospective study based on clinical practice data, the requirement for written informed consent was waived by the ethics committee.

Conflict of Interests

The authors declare no conflict of interests related to the publication of this manuscript.

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Author Contributions

Study Design: **HB**. Data Collection: **HB, GB**. Data Analysis: **AR**. Study Supervision: **AH, MR**. Manuscript Writing: **AH, AR**. Critical Revision for Important Intellectual Content: **MR**.

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