A RETROSPECTIVE STUDY ON NURSING CARE FOR BURN INJURY PATIENTS FROM 2020-2024 AT QUIRINO MEMORIAL MEDICAL CENTER

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A Retrospective Study on Nursing Care for Burn Injury Patients from 2020-2024 at Quirino Memorial Medical Center

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Abstract. Burn injuries remain a significant public health concern globally, particularly in low- and middle-income countries where access to specialized burn care is limited. This study aimed to examine the characteristics, trends, and outcomes of burn injury patients admitted to Quirino Memorial Medical Center (QMMC) from 2020 to 2024, with emphasis on nursing care implications. A quantitative descriptive retrospective design was employed through the review of medical records of all burn patients admitted to the Burn Critical Care Unit during the five-year period. Total population sampling was utilized, yielding 426 burn cases. Data were analyzed using descriptive statistics, including frequency, percentage, and trend analysis. Findings revealed that burn injuries predominantly affected adults aged 30–49 years (23.24%), followed by infants (18.31%) and young adults (18.08%). Male patients accounted for the majority of cases (73%), with most individuals classified as single (78.40%) and unemployed (67.61%). The majority of cases originated from Metro Manila (50.47%) and nearby provinces in CALABARZON (42.25%). Scald burns were identified as the most common type of injury (41.55%), followed by electrical burns (22.54%) and flash burns (21.60%). A total of 424 patients were discharged, while 45 deaths were recorded, resulting in an overall mortality rate of 10.6%. Mortality was highest among adults aged 30–49 years and males, with flash burns identified as the leading cause of death. The findings indicate that burn injuries remain a persistent healthcare concern, particularly among working-age males exposed to occupational hazards and vulnerable populations exposed to domestic risks. The results underscore the critical role of nursing care in early assessment, fluid resuscitation, infection prevention, wound management, and patient education to improve clinical outcomes. Based on the findings, the study recommends the development and implementation of a comprehensive burn care management program to standardize nursing protocols, enhance clinical competencies, and strengthen preventive strategies. This study contributes to the limited local evidence on burn injury patterns and nursing care outcomes in tertiary government hospitals, providing insights for policy development, resource allocation, and quality improvement initiatives in burn care management.

Keywords: Burn injury, Nursing care, Retrospective study, Patient outcomes, Burn epidemiology, Mortality, Tertiary hospital, Philippines

Introduction

Burn injuries remain a major global health problem and a significant public health concern in the Philippines. A burn is defined as damage to the skin or other tissues caused by heat, electricity, chemicals, radiation, or friction. According to the World Health Organization (2023), approximately 180,000 people die from burn injuries each year, with the majority of cases occurring in low- and middle-income countries. These injuries not only result in high mortality but also lead to long-term physical, psychological, and social consequences, making them a critical issue in global healthcare systems.

In the Philippine context, access to specialized burn care is limited, with only a few tertiary hospitals equipped with dedicated burn units. Among these is Quirino Memorial Medical Center (QMMC), a

government-funded tertiary hospital in Quezon City that serves a large and diverse population from Metro Manila and nearby provinces. Due to its strategic role, QMMC handles a substantial number of burn cases annually, making it a key institution for understanding burn injury patterns and improving the quality of nursing care delivered to patients.

Burn injuries present complex clinical challenges, particularly in resource-limited settings where gaps in specialized services, critical care capacity, and rehabilitation facilities contribute to preventable complications and mortality. In such environments, the role of nursing care becomes increasingly vital. Nurses are central to the burn care continuum, providing time-sensitive interventions such as fluid resuscitation, pain management, wound care, infection prevention, nutritional support, and patient education. High-quality and consistent bedside nursing care is therefore essential in improving patient outcomes.

Despite the burden of burn injuries, there is a scarcity of local studies in the Philippines focusing specifically on burn care and patient outcomes. This gap highlights the need for research that describes the characteristics and management of burn patients in tertiary government hospitals. Furthermore, the study period (2020–2024) coincides with the COVID-19 pandemic, during which healthcare systems experienced significant disruptions, including delays in care, resource reallocation, and changes in clinical workflows. These factors may have influenced both nursing practices and patient outcomes, emphasizing the importance of examining real-world data during this period.

This retrospective study aims to evaluate nursing care provided to burn-injury patients at QMMC from 2020 to 2024. Specifically, it seeks to describe patient demographics and injury characteristics; assess key nursing care processes such as resuscitation, pain management, wound care, and patient education; and examine their relationship with clinical outcomes including complications, length of stay, intensive care admission, and mortality. The findings are expected to contribute to evidence-based improvements in burn care practices, resource allocation, and policy development in similar healthcare settings.

Research Questions

This study describes the characteristics and outcomes of burn cases in Quirino Memorial Medical Center from 2020-2024.

Specifically, this study answered the following questions;

1. What is the demographic profile of the cases in terms of:
   1.1 Age groups;
   1.2 Gender;
   1.3 Civil status;
   1.4 Occupation; and
   1.5 Locale?
2. is the characteristic distribution of the cases for the last five years in terms of:
   2.1 Admission per month and year;
   2.2 Types of burn injury; and
   2.3 Discharges and mortality?
3. What is the characteristic distribution of burn mortality cases for the last five years in terms of:
   3.1 Age groups;
   3.2 Gender; and
   3.3 Types of burn injury?

Scope and Delimitation of the Study

This retrospective study examines the medical records of burn patients treated at Quirino Memorial Medical Center from January 1, 2020, to December 31, 2024. It aims to provide a comprehensive description of the patients' demographic characteristics, types and causes of burn injuries, and patterns of burn-related mortality, including classification by age group and injury type. The study is limited to burn cases managed within the institution and does not include other forms of injury or deaths resulting from conditions unrelated to burn trauma. As a record-based investigation, the study is subject to limitations such as incomplete or inaccurate documentation, missing data, and the inability to capture long-term patient outcomes following discharge. Additionally, variables not included in the available records or beyond the defined scope of the study will not be analyzed and are recommended for further exploration in future research.

Literature Review

Burn injuries are among the most complex and severe forms of trauma, producing significant physical, psychological, social, and economic consequences. The skin, which functions as the body's primary protective barrier, can tolerate temperatures up to 44°C; exposure beyond this threshold leads to cellular damage and tissue destruction. The severity of burns depends on both temperature and duration of exposure,

with deeper burns associated with delayed healing, higher infection risk, and increased likelihood of surgical intervention such as debridement and skin grafting (Zhou et al., 2023; Liu et al., 2017).

Globally, burn injuries remain a major public health concern. The World Health Organization (2018, 2023) estimates approximately 180,000 deaths annually due to burns, with the majority occurring in low- and middle-income countries (LMICs). In 2021 alone, an estimated 12.99 million severe burn cases and 235 million minor burn cases were reported worldwide (Zhou et al., 2023). Southeast Asia, including the Philippines, bears a disproportionate burden due to socioeconomic vulnerabilities, overcrowded housing, unsafe cooking practices, and limited access to specialized burn care and rehabilitation services (WHO, 2023; Department of Health, 2020).

In the Philippine context, burn injuries are commonly caused by scalds and flame exposure, particularly in domestic settings. Studies conducted at major centers such as the Southern Philippines Medical Center and the UP–PGH Alfredo T. Ramirez Burn Center report that scald burns account for approximately 52% of cases, followed by flame burns at around 30% (Villareal et al., 2019; Abesamis & Cruz, 2019). Children and individuals from low-income households are particularly vulnerable due to hazardous living conditions and limited access to preventive education and healthcare resources. Despite these findings, national-level data remain limited, highlighting the need for institution-based studies to better understand burn epidemiology and outcomes.

Burn severity is typically assessed using total body surface area (TBSA) and depth of injury. Burns are classified as superficial, partial-thickness, or full-thickness, with increasing depth corresponding to greater tissue destruction, complication risk, and need for surgical management (Liu et al., 2017). International evidence shows that larger TBSA and deeper burns are strongly associated with higher infection rates, longer hospital stays, and increased mortality (Pruitt et al., 2008; Lachiewicz et al., 2012). Delayed surgical intervention, particularly in LMIC settings, further exacerbates these risks (Gundeslioglu & Selimoglu, 2011).

Nursing care plays a central and time-sensitive role across the burn care continuum. Core responsibilities include airway management, fluid resuscitation, pain control, wound care, infection prevention, nutritional support, and psychological care. The American Burn Association (2020) emphasizes structured pain assessment, multimodal analgesia, and pre-procedural pain management as essential components of care. Emerging evidence also supports non-pharmacologic interventions such as virtual reality therapy to reduce procedural pain during wound care and rehabilitation.

Infection remains a leading cause of morbidity and mortality among burn patients, particularly in the later stages of hospitalization. Risk factors include extensive TBSA involvement, prolonged hospital stay, and use of invasive devices. Common pathogens include multidrug-resistant organisms such as Acinetobacter baumannii and Pseudomonas aeruginosa (Abesamis & Cruz, 2019). Nursing-led infection prevention strategies—including strict hand hygiene, catheter care, and early device removal—have been shown to significantly reduce hospital-acquired infections (Lachiewicz et al., 2012). Early enteral nutrition within 24–48 hours of admission is also associated with improved outcomes, requiring coordinated nursing implementation (ABA, 2020).

Beyond clinical care, nurses in burn units face significant occupational challenges, including heavy workloads, emotional strain, and ethical dilemmas. Exposure to patient suffering, high-intensity care demands, and end-of-life situations contribute to burnout, anxiety, and psychological distress among nurses. Studies indicate that these factors may negatively affect job satisfaction, performance, and retention, underscoring the importance of institutional support systems, adequate staffing, and mental health resources (Peck, 2011; Tyson et al., 2014).

Local literature further highlights systemic challenges in burn care delivery in the Philippines. Only a limited number of hospitals are equipped with dedicated burn units, including the Philippine General Hospital, Jose R. Reyes Memorial Medical Center, East Avenue Medical Center, Quirino Memorial Medical Center (QMMC), and Southern Philippines Medical Center. This limited capacity constrains access to specialized care for a large population, emphasizing the need for improved resource allocation and standardized care protocols. Previous studies have identified infection, delayed treatment, and burn severity as key predictors of mortality, yet few have examined how nursing care processes directly influence patient outcomes (Villareal et al., 2019).

Recent international and local evidence consistently demonstrates that effective nursing interventions—such as timely fluid resuscitation, structured pain management, aseptic wound care, early mobilization, and nutritional support—are strongly associated with improved outcomes, including reduced length of stay, lower infection rates, and decreased mortality. However, there remains a significant gap in research linking these nursing practices to patient outcomes in LMIC government hospital settings, particularly during the COVID-19 pandemic period.In summary, existing literature confirms that burn injuries continue to pose a significant global and local health burden, with outcomes influenced by injury severity, infection risk, and quality of care. While international guidelines define best practices, there is limited evidence examining their implementation and effectiveness in Philippine public hospitals. This study addresses this gap by evaluating nursing care practices and patient outcomes among burn patients at Quirino Memorial Medical Center from 2020 to 2024, with the aim of informing evidence-based improvements in burn care delivery, resource allocation, and clinical practice.

Methodology

Research Design

The research study utilized a quantitative research design, specifically the descriptive method. The descriptive research design was used to present the data on the demographic variables of the respondents, the types of burn cases, and the mortality recorded in the Burn Critical Care Unit of Quirino Memorial Medical Center.

Sampling Design

The investigator used the total population sampling method in this research study. This type of purposive sampling included all identified respondents in the burn critical care unit of Quirino Memorial Medical Center. This method helped determine the status of burn-related cases and contributed to the analytical generalization of the population being studied.

Research Locale

The study was conducted in the Burn Critical Care Unit of Quirino Memorial Medical Center, a Department of Health (DOH)-retained tertiary hospital located in Quezon City, Philippines. A retrospective cohort design was used to review existing medical records and describe the characteristics and outcomes of burn patients. This approach allowed the researchers to examine relationships between variables over time without manipulating any conditions.

Research Participants

All treated burn-related injuries catered by the burn critical care unit in Quirino Memorial Medical Center from 2020 to 2024, regardless of age and sex, were included in the study.

Research Instrument

Data needed for the research study were collected through the use of QMMC medical records review. Existing records on burn cases attended from year 2020 - 2024 were reviewed and organized as needed for the study.

Data Gathering Procedure

Letter of request addressed to the institution head, as well as the head of the Records section and Burn Critical Care Unit of Quirino Memorial Medical Center was forwarded upon approval of the research study by the chosen Ethics Review Board. Once consented by the heads of the institution, medical records review were done in accordance with the institution. All records of burn patients from 2020 – 2024 have been reviewed and tallied in order to identify needed variables.

Results and Discussions

Problem 1: **What is the demographic profile of the cases in terms of Age groups, Gender, Civil status, Occupation, and Locale**

Table 1: Demographic profile of the cases in terms of Age groups

Age Groups	Age Range	2020	2021	2022	2023	2024	Total (f)	Percentage (%)
Infants	0-1 year	10	14	7	23	24	28	18.31%
Toddler	2-4 years	2	4	16	19	10	51	11.97%
Children	5-12 years	3	4	8	12	15	42	9.86%
Adolescents	13-17 years	0	7	2	5	6	20	4.69%
Young Adults	18-29 years	9	12	21	24	11	77	18.08%
Adults Older	30-49 years	9	22	22	27	19	99	23.24%
Adults	50-64 years	2	5	8	13	8	36	8.45%
Seniors	65 years and above	4	2	1	8	8	23	5.40%
Total		**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 1 shows that Adults aged 30–49 years recorded the highest number of burn injury cases with 99 (23.24%), followed by Infants (0–1 year) with 78 (18.31%) and Young Adults (18–29 years) with 77 (18.08%), indicating that these groups are the most affected during 2020–2024. This suggests that adults are

highly exposed to occupational hazards such as open flames, hot surfaces, and electrical equipment, while infants are vulnerable to domestic accidents, particularly scald burns. In contrast, the lowest cases were observed among Adolescents (13–17 years) with 20 (4.69%) and Seniors (65 years and above) with 23 (5.40%), possibly due to lower exposure to risk factors and increased supervision or awareness. These findings highlight the need for targeted prevention strategies, including improved occupational safety for adults and enhanced parental education on household burn prevention. This pattern is supported by the World Health Organization (2018), which identifies young children and working-age adults as high-risk groups, as well as studies by Othman and Kendrick (2010) and Tan, Cruz, and Nable-Aguilera (2017), which emphasize occupational risks for adults and domestic burn injuries among children.

Table 2: Demographic profile of the cases in terms of Gender

Gender	2020	2021	2022	2023	2024	Total (f)	Percentage (%)
Male	30	53	66	97	65	28	73%
Female	9	17	19	34	36	51	27%
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 2 shows that male patients recorded the highest incidence of burn injuries with 311 cases (73%), while female patients accounted for only 115 cases (27%) over the five-year period, indicating that burn injuries are more prevalent among males. This pattern suggests that males are more exposed to occupational hazards such as fire, heat, chemicals, and electrical risks due to their involvement in high-risk jobs like construction and mechanical work, whereas females are more likely to experience burns in domestic settings, particularly from cooking-related incidents. The findings highlight the need for gender-specific prevention strategies, including strengthened workplace safety education for men and improved household burn prevention awareness for women. This result is consistent with Forjuoh (2006) and Othman and Kendrick (2010), who reported higher burn incidence among males due to occupational exposure, as well as the local study by Tan, Cruz, and Nable-Aguilera (2017), which similarly found that the majority of burn patients were male, reinforcing the role of gender in burn risk exposure.

Table 3: **Demographic profile of the cases in terms of Civil Status**

Civil Status	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
Single	30	55	65	102	82	334	78.40%
Married	7	14	18	26	17	82	19.25%
Widowed	2	1	3	3	2	10	2.35%
Separated	0	0	0	0	0	0	0
Divorced/Annulment	0	0	0	0	0	0	0
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 3 shows that single individuals recorded the highest number of burn injury cases with 334 (78.40%), followed by married patients with 82 (19.25%) and widowed individuals with 10 (2.35%), while no cases were reported among those separated or divorced. This indicates that burn injuries are most prevalent among single individuals, likely because this group consists mainly of younger, active adults who are more exposed to occupational, outdoor, and domestic risks. In contrast, married and widowed individuals showed lower incidence, possibly due to more stable living conditions and reduced exposure to high-risk environments. The absence of separated or divorced cases reflects the sociocultural and legal context of the Philippines, where divorce is not widely recognized and thus rarely reflected in hospital records. These findings highlight the need for targeted prevention programs focusing on younger and single populations. This pattern is consistent with Forjuoh (2006) and Othman and Kendrick (2010), who noted that single individuals, particularly young adults, are more prone to burn injuries due to higher exposure to risk, and is further supported by Tan, Cruz, and Nable-Aguilera (2017), whose local study showed that burn cases are concentrated among younger, working-age groups.

Table 4: **Demographic profile of the cases in terms of Occupation**

Occupation Category	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
Unemployed/Not Working	30	45	50	87	76	288	67.61%
Public Sector/Government Employees	0	0	1	0	1	2	0.47%
Skilled Manual Workers/Blue Collar	5	21	13	27	17	83	19.48%
Transport Workers	1	0	4	4	2	11	2.58%
Self Employed/Informal Sectors	3	2	8	7	3	23	5.40%
Private Sectors	0	2	9	6	2	19	4.46%
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 4 shows that the highest proportion of burn patients from 2020 to 2024 were unemployed or not working, totaling 288 cases (67.61%), followed by skilled manual or blue-collar workers with 83 cases (19.48%). The lowest frequencies were recorded among public sector employees (0.47%), transport workers (2.58%), private sector employees (4.46%), and self-employed or informal sector workers (5.40%). This indicates that burn injuries are most prevalent among individuals exposed to domestic hazards—such as children, students, homemakers, and the elderly—where extended home exposure and limited safety awareness increase the risk of accidents with hot liquids, flames, or electrical appliances. The notable incidence among blue-collar workers reflects occupational hazards from industrial, construction, or mechanical work involving fire, electricity, welding, and chemicals. Conversely, lower cases among public and private sector employees likely relate to safer work environments and stricter safety regulations. These findings emphasize that both domestic and occupational settings contribute to burn injuries, highlighting the need for targeted preventive programs addressing home safety awareness and workplace hazard education. This aligns with Othman and Kendrick (2010), who reported higher burn risks among low-income and unemployed individuals due to unsafe home conditions, and Forjuoh (2006), who emphasized occupational exposure among manual laborers as a major risk factor. Locally, Elloso and Cruz (2017) also found that work-related burns predominated among construction and electrical workers due to inadequate protective measures, supporting the present study's findings.

Table 5: Demographic profile of the cases in terms of Locale

Locale	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
NCR (Metro Manila)	23	36	41	64	51	215	50.47%
CALABARZON	12	26	36	60	46	180	42.25%
MIMAROPA	1	0	1	3	0	5	1.17%
Central Luzon	3	6	7	4	4	22	5.16%
Ilocos/Pangasinan	0	0	0	7	0	1	0.23%
Others (Visayas & Mindanao)	0	2	0	6	0	3	40.70%
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 5 shows that the majority of burn patients admitted to Quirino Memorial Medical Center (QMMC) from 2020 to 2024 came from Metro Manila (NCR) with 215 cases (50.47%), followed by CALABARZON with 180 cases (42.25%), together accounting for nearly 93% of all admissions. The remaining regions contributed fewer cases: Central Luzon with 22 cases (5.16%), MIMAROPA with 5 cases (1.17%), Visayas and Mindanao with 3 cases (0.70%), and Ilocos/Pangasinan with only 1 case (0.23%). The high proportion from Metro Manila and CALABARZON reflects their proximity to QMMC, a tertiary referral center, as well as their dense populations and higher exposure to industrial, electrical, and domestic hazards. Patients from more distant regions likely sought care locally due to travel limitations. This pattern suggests that urban and peri-urban areas are more prone to burn injuries and benefit from easier access to tertiary care. These findings are consistent with Department of Health reports (2018) and the study by Tan, Cruz, and Nable-Aguilera (2017) at the UP–PGH Alfredo T. Ramirez Burn Center, which also noted higher burn admissions from Metro Manila and CALABARZON due to population density, rapid urbanization, and increased exposure to domestic and occupational hazards. Othman and Kendrick (2010) similarly highlight

that urban centers in developing countries experience more burn-related admissions because of concentrated household and workplace risks. Overall, this data emphasizes the need for targeted burn-prevention initiatives and community safety education in highly populated and industrialized regions.

Problem 2: **What is the characteristic distribution of the cases for the last five years in terms of Admission per month and year, Types of burn injury and Discharges and mortality**

Table 6: Characteristic distribution of the cases for the last five years in terms of Admission per month and year

Month	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
January	4	6	1	14	15	40	9.39%
February	11	5	7	11	12	46	10.80%
March	1	8	5	16	11	41	9.67%
April	2	1	6	12	5	26	6.10%
May	2	8	5	9	4	28	6.57%
June	0	5	8	11	6	30	7.04%
July	4	7	10	9	9	39	9.15%
August	2	6	4	8	5	25	5.87%
September	3	5	8	11	9	35	8.45%
October	4	9	9	8	10	40	9.39%
November	2	5	13	10	5	35	8.22%
December	4	5	9	12	10	40	9.39%
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 6 shows that burn admissions at Quirino Memorial Medical Center (QMMC) from 2020 to 2024 peaked in 2023 with 131 cases (30.75%), followed by 2024 with 101 cases (23.71%) and 2022 with 85 cases (19.95%). The lowest admissions occurred in 2020 with 39 cases (9.15%), likely due to COVID-19 restrictions limiting hospital visits. Monthly analysis revealed higher admissions in February (10.80%), March (9.62%), January (9.39%), October (9.39%), and December (9.39%), coinciding with the dry season and festive periods when firework accidents, cooking mishaps, and outdoor work injuries are more common. The lowest monthly rates were in August (5.87%), April (6.10%), and May (6.57%), during the rainy season when outdoor activities and occupational exposure decrease. Despite these fluctuations, burn injuries occurred year-round, reflecting constant domestic and occupational hazards. These trends align with international and local literature: Peck et al. (2011) and Shankar et al. (2019) reported higher burn incidences during dry and festive months in tropical countries, while the Philippine Department of Health (DOH, 2020) noted spikes during December and New Year celebrations due to fireworks and household accidents. Overall, the data indicate that burn incidence is influenced by environmental, cultural, and occupational factors, emphasizing the need for continuous, proactive burn-prevention campaigns, particularly before high-risk months.

Table 7: Characteristic distribution of the cases for the last five years in terms of Types of burn injury

Types of Burn	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
Flash Burn	4	11	23	34	20	92	21.60%
Scald Burn	18	25	31	55	48	177	41.55%
Electrical Burn	11	21	23	22	19	96	22.54%
Flame Burn	5	11	3	11	11	41	9.62%
Chemical Burn	1	0	0	9	1	4	0.93%
Infected Burn		2	5	11	2	16	3.76%
Total	**39**	**70**	**85**	**131**	**101**	**426**	**100%**

Table 7 shows that from 2020 to 2024, scald burns were the most common type of burn injury at Quirino Memorial Medical Center, accounting for 177 cases (41.55%), followed by electrical burns with 96

cases (22.54%) and flash burns with 92 cases (21.60%). Together, these three types represented over 85% of all admissions. The least frequent burns were chemical burns (4 cases, 0.93%) and infected burns (16 cases, 3.76%), indicating these injuries are relatively rare. The high prevalence of scald burns is likely due to domestic accidents involving hot water, cooking oil, or steam, commonly affecting children and homemakers. Electrical and flash burns were more common among working-age adults, reflecting occupational exposure to electricity, welding, and flammable materials, while flame burns were often linked to open fire, gas leaks, or kerosene lamps. These findings align with international studies: Forjuoh (2006) notes scald burns as the leading global cause, particularly among children and females, and Peck (2011) highlights domestic burns as the primary admission cause in developing countries. Ahuja and Bhattacharya (2004) further report that chemical and infected burns, although less common, have higher complication risks. In summary, the data emphasize that most burn injuries are preventable, highlighting the need for domestic safety education and occupational hazard prevention to reduce burn-related admissions.

Table 8: Characteristic distribution of the cases for the last five years in terms of Discharges and Mortality

MONTH	2020 Discharges	2020 Mortality	2021 Discharges	2021 Mortality	2022 Discharges	2022 Mortality	2023 Discharges	2023 Mortality	2024 Discharges	2024 Mortality	Total(f)	Percentage (%)
January	3	1	7	2	3	0	15	3	10	0	38	8.96%
February	11	0	0	0	5	1	9	3	9	0	34	8.02%
March	2	0	7	1	5	0	18	1	13	1	45	10.61%
April	1	0	2	1	6	0	12	3	5	0	26	6.13%
May	2	1	8	2	5	0	9	1	8	0	32	7.55%
June	1	0	6	2	8	0	10	0	8	1	33	7.78%
July	4	1	5	1	8	1	12	1	5	0	34	8.02%
August	3	0	5	1	8	0	8	1	5	0	29	6.84%
September	1	0	6	1	7	2	7	0	11	2	32	7.55%
October	4	1	5	1	8	1	12	0	14	1	43	10.14%
November	1	0	7	1	11	1	7	1	8	0	34	8.02%
December	4	0	4	0	9	0	17	2	1	1	44	10.38%
Total	**37**	**4**	**62**	**13**	**85**	**6**	**131**	**16**	**101**	**6**	**424**	**100 %**

Table 8 shows that from 2020 to 2024, a total of 424 burn patients were discharged, while 45 patients died from burn-related complications, yielding an overall mortality rate of 10.6%. The highest number of discharges occurred in 2023 with 136 patients (32.07%), followed by 2024 with 106 (25%), while the lowest was in 2020 with 37 discharges (8.72%), likely due to reduced hospital admissions during COVID-19 lockdowns. Mortality was highest in 2023 (16 deaths, 35.56%) and 2021 (13 deaths, 28.89%), and lowest in 2020 (4 deaths, 8.89%) and in 2022 and 2024 (6 deaths each, 13.33%). The increase in both discharges and deaths in 2023 mirrors the peak in admissions that year, indicating that higher patient volumes correspond with proportional outcomes. Overall, the data show that most burn patients survive and are successfully discharged, reflecting effective medical and nursing care, though burn injuries remain life-threatening, particularly in extensive burns, delayed treatment, or infections. These results align with international literature: Brusselaers et al. (2010) note improved survival due to advances in resuscitation, infection control, and wound management, while Greenhalgh (2019) emphasizes that timely intervention and quality nursing care are critical in acute burn management. Local data from the Philippine Burn Society (2021) report mortality rates of 8–12% in tertiary hospitals, consistent with the present study. In summary, Quirino Memorial Medical Center recorded 424 discharges and 45 deaths (10.6%) over five years, with 2023 showing the highest activity, underscoring the importance of continuous improvements in early intervention, infection control, and burn care management.

Problem 3: **What is the characteristic distribution of burn mortality cases for the last five years in terms of Age groups, Gender, Type of burn injury**

Table 9: Characteristic distribution of burn mortality cases for the last five years in terms of Age groups

Age Group	2020	2021	2022	2023	2024	Total(f)	Percentage (%)
Infants (0-1 year)	1	3	0	3	1	8	17.78%

Toddlers (2-4 years)	0	0	0	0	0	0	0%
Children (5-12 years)	0	1	0	0	1	2	4.44%
Adolescents (13-17 years)	0	0	0	1	0	1	2.22%
Young Adults (18-29 years)	0	1	2	0	0	3	6.67%
Adults (30-49 years)	2	6	2	7	2	19	42.22%
Older Adults (50-64 years)	0	0	2	4	0	6	13.33%
Seniors (65 years and above)	1	2	0	1	2	6	13.33%
Total	**4**	**13**	**6**	**16**	**6**	**45**	**100%**

Table 9 shows that from 2020 to 2024, the highest burn-related mortality occurred in adults aged 30–49 years, accounting for 19 out of 45 deaths (42.22%), followed by infants (0–1 year) with 8 deaths (17.78%), and both older adults (50–64 years) and seniors (65 years and above) with 6 deaths each (13.33%). Mortality was lowest among adolescents (13–17 years) with 1 case (2.22%) and children (5–12 years) with 2 cases (4.44%), while toddlers (2–4 years) recorded no deaths. The predominance of mortality in adults reflects their higher exposure to occupational hazards, including industrial, electrical, and flame-related accidents, often resulting in deeper burns and larger total body surface area (TBSA) involvement, which increase the risk of fatal outcomes. Infant mortality highlights their vulnerability to complications such as infection, dehydration, and shock due to limited physiological reserves. These results align with Ahuja and Bhattacharya (2004), who noted that working-age adults are more likely to die from occupational burn injuries, and Forjuoh (2006), who emphasized that infants and young children are susceptible to domestic scald burns with higher mortality. Peck (2011) further supports that extreme age groups—infants and the elderly—face increased risks due to thinner skin, weaker immunity, and lower tolerance for fluid shifts and infections. In summary, adults aged 30–49 years and infants are the most vulnerable populations for burn-related deaths, emphasizing the need for occupational safety measures, parental supervision, and targeted burn care interventions for both adults and pediatric patients.

Table 10: Characteristic distribution of burn mortality cases for the last five years in terms of Gender

Gender	2020	2021	2022	2023	2024	Total (f)	Percentage (%)
Male	4	10	4	12	2	32	71.11%
Female	0	3	2	4	4	13	28.89%
Total	**4**	**13**	**6**	**16**	**6**	**45**	**100%**

Table 10 shows that from 2020 to 2024, the majority of burn-related deaths at Quirino Memorial Medical Center occurred in male patients, with 32 deaths (71.11%), while females accounted for 13 deaths (28.89%). This indicates that men were more than twice as likely to die from burn injuries compared to women. The higher mortality among males reflects greater exposure to occupational and environmental hazards, such as electrical work, industrial machinery, and flammable materials, which often result in more severe burns and complications. Female mortality, though lower, remained clinically significant, largely associated with domestic incidents like scalds and cooking-related burns, influenced by socioeconomic factors affecting timely access to care and treatment. These findings are consistent with Forjuoh (2006), who reported higher burn injury and fatality rates in males due to high-risk occupational and outdoor activities, and Peck (2011), who noted that men are more exposed to electrical and flame burns, while women are more prone to domestic scald injuries. Brusselaers et al. (2010) further highlighted that male patients often sustain burns involving larger total body surface area (TBSA) and experience delayed medical attention, contributing to higher mortality. Locally, Tan, Cruz, and Nable-Aguilera (2017) also found that most burn patients were male, supporting these results. In summary, males represent the highest-risk group for burn-related deaths, emphasizing the importance of occupational safety measures and public education programs targeting both workplace and home burn prevention.

Table 11: Characteristic distribution of burn mortality cases for the last five years in terms of Types of Burn Injury

Type of Burn	2020	2021	2022	2023	2024	Total (f)	Percentage (%)
Flash Burn	1	5	2	9	2	19	42.22%

Scald Burn	1	4	0	2	1	8	17.78%
Electrical Burn	2	3	2	0	2	9	20%
Flame Burn	0	2	2	5	1	9	20%
Total	**4**	**13**	**6**	**16**	**6**	**45**	**100%**

Table 11 shows that from 2020 to 2024, the majority of burn-related deaths at Quirino Memorial Medical Center were caused by flash burns, accounting for 19 deaths (42.22%), followed by electrical burns and flame burns with 9 deaths each (20%), and scald burns with 8 deaths (17.78%). The high mortality from flash burns suggests that sudden, high-heat exposures or explosion-type incidents often result in severe tissue damage, large total body surface area (TBSA) involvement, and inhalation injuries, all of which significantly increase the risk of death. Electrical and flame burns also contributed substantially to mortality, particularly among adults exposed occupationally to open flames, power sources, or flammable materials. Scald burns, although common in children and domestic settings, caused fewer deaths, likely because they more often involve partial-thickness injuries; however, fatalities still occurred in very young and elderly patients due to vulnerability to infection, shock, and other complications. These findings are consistent with Brusselaers et al. (2010), who noted that flame and flash burns produce the highest mortality due to extensive tissue and respiratory damage, and with Ahuja and Bhattacharya (2004), who emphasized that electrical and flash burns are highly fatal even when external injury appears limited. Peck (2011) similarly reported severe outcomes from flame burns in adults, while Philippine DOH (2018) data indicate that occupational and domestic flame and electrical hazards drive most fatal burn cases locally. In summary, flash burns (42.22%) remain the leading cause of burn mortality, followed by electrical (20%), flame (20%), and scald burns (17.78%). These results underscore the need for targeted workplace safety training, proper handling of electrical and flammable materials, and prompt clinical management of high-energy burns to reduce fatalities.

Ethical Considerations

This study adhered to established ethical standards in health research to protect the rights and welfare of all participants. Approval to conduct the research was obtained from the in-house Ethics Committee of Dr. Carlos S. Lanting College, as well as the Quirino Memorial Medical Center – Ethics Review Board (QMMC-ERB) and the QMMC Professional Education, Training, and Research Office (QMMC-PETRO). The study commenced only after clearances were secured from these committees. Informed consent was obtained from participants after explaining the purpose of the study, the procedures involved, and their right to voluntarily participate or withdraw at any time without any consequences. Confidentiality and anonymity were strictly maintained; participants' identities were protected through the use of codes, and no personal information was disclosed in data analysis or reporting. All data collected were handled, stored, and used solely for research purposes in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173) and its implementing rules. The study ensured that participants were not exposed to physical, psychological, or emotional harm, and ethical principles of fairness, objectivity, and integrity were upheld throughout the research process.

Conclusion

Based on the findings of this study, it can be concluded that burn injuries at Quirino Memorial Medical Center from 2020 to 2024 predominantly affected adult males, particularly those aged 30–49 years, reflecting their heightened exposure to occupational hazards and high-risk environments. A considerable proportion of patients were unemployed or from low-income households, suggesting that socioeconomic factors influence both the risk of burn injuries and access to timely medical care. In terms of injury type, scald and electrical burns were the most common, highlighting the critical need for targeted domestic safety measures and occupational hazard prevention strategies. The mortality rate was highest among adults and males, with flash burns identified as the leading cause of death, underscoring the severity of high-energy burn injuries and the vulnerability of working-age populations. Overall, these findings emphasize the importance of implementing standardized nursing protocols, early intervention, and comprehensive preventive education to mitigate burn-related morbidity and mortality, ensuring that both domestic and occupational burn risks are adequately addressed in high-risk populations.

Reccomendations

In response to the study's findings and conclusions, it is recommended to establish a Comprehensive Burn Care Management Program for Nursing Practice at Quirino Memorial Medical Center. This program aims to enhance nursing competencies, standardize clinical protocols, and ensure consistent, evidence-based care across all stages of burn management, from initial assessment to rehabilitation. Specifically, the

program will provide a structured framework guiding nurses in patient assessment, clinical interventions, documentation, interdisciplinary collaboration, and patient and family education. Its overarching goal is to improve patient outcomes by promoting holistic, safe, and high-quality care, strengthening nurses' expertise through continuous training, and fostering coordinated care among the healthcare team. By implementing this program, the hospital can ensure that burn patients receive comprehensive and standardized nursing care, ultimately reducing morbidity and mortality associated with burn injuries.

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