IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 7 Ser. 1 (July. 2026), PP 87-93
www.iosrjournals.org

Effects of Narcotic Drug Abuse on Surgical Wound Healing

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ABSTRACT
Background: *Surgical wound healing may be impaired by several patient-related and operative factors, but narcotic drug abuse is often under-assessed during perioperative evaluation. Substance abuse may affect immune response, angiogenesis, nutrition, hygiene, and follow-up, thereby increasing the risk of delayed wound healing and postoperative wound complications.*
Aim of the study: *This study aimed to assess the effects of narcotic drug abuse on surgical wound healing among postoperative patients.*
Methods: *This comparative observational study was conducted in the Department of Surgery of a tertiary care hospital. A total of 80 adult surgical patients were included by purposive sampling to ensure equal representation of 40 narcotic drug abusers and 40 non-abusers. Relevant sociodemographic, clinical, substance-use, and surgical variables were recorded. Postoperative wound healing and complications were assessed clinically during hospital stay and follow-up. Categorical variables were compared by Chi-square test or Fisher's exact test, and continuous variables by independent-samples t-test. A p-value <0.05 was considered statistically significant.*
Results: *Narcotic drug abusers were significantly younger than non-abusers (34.8 ± 9.6 versus 43.6 ± 12.2 years, p=0.001), and smoking was more common among them (70.0% versus 35.0%, p=0.003). Yaba or methamphetamine was the most commonly abused substance (40.0%), followed by heroin (20.0%). Delayed wound healing was significantly higher among narcotic drug abusers than non-abusers (45.0% versus 17.5%, p=0.015). Surgical site infection (40.0% versus 15.0%, p=0.023) and wound discharge (37.5% versus 12.5%, p=0.019) were also significantly more frequent among abusers. Total wound healing time (19.4 ± 6.2 versus 13.1 ± 4.4 days) and postoperative hospital stay (9.6 ± 3.1 versus 6.8 ± 2.2 days) were significantly prolonged among narcotic drug abusers (p<0.001).*
Conclusion: *Narcotic drug abuse was significantly associated with impaired surgical wound healing, including higher wound complications, delayed healing, and longer hospital stay. Preoperative screening, proper optimization, infection prevention, and close postoperative wound monitoring are recommended for these patients.*
Keywords: *Narcotic drug abuse; Surgical wound healing; Delayed wound healing; and Surgical site infection*

I. INTRODUCTION

In surgical practice, wound healing is a coordinated biological process involving hemostasis, inflammation, proliferation, angiogenesis, collagen deposition, epithelialization, and tissue remodeling. When this sequence is disturbed, patients may develop delayed healing, surgical site infection, wound discharge, wound dehiscence, prolonged hospitalization, reoperation, and increased treatment costs. Although surgical technique, wound class, contamination, diabetes, anemia, malnutrition, smoking, and antibiotic practice are well-recognized determinants, substance abuse is often under-assessed during preoperative evaluation, especially in low-resource settings. Because many patients do not voluntarily disclose substance use, surgeons may miss an important modifiable risk factor before operation and during postoperative follow-up.

Across the world, drug use disorders remain an important public health burden, with marked regional variation in morbidity and disability [1]. At the same time, surgical site infection is among the most frequent postoperative complications; a recent systematic review estimated a global pooled incidence of 2.5%, while studies from low- and middle-income countries show greater clinical and economic consequences due to delayed presentation, limited infection-control resources, and out-of-pocket expenditures [2,3]. Within South Asia, and particularly in Bangladesh, substance use among young adults is increasingly visible, with recent Bangladeshi studies reporting past-year drug use among university admission test-takers and growing concern regarding methamphetamine or Yaba use in Dhaka [4,5]. In this context, postoperative wound complications may create a double burden: avoidable surgical morbidity for the patient and additional pressure on already constrained hospital services.

From a biological perspective, narcotic drug abuse may impair wound repair through several pathways. Opioids interact with immune cells through opioid receptors and may alter innate and adaptive immune responses, cytokine activity, macrophage function, and host defense against infection [6,7]. Opioid-related modulation of

angiogenesis is also clinically relevant, because neovascularization is essential for granulation tissue formation and epithelial repair [8]. Methamphetamine has been shown to disrupt host immunity, increase susceptibility to infection, and impair phagocytic activity during methicillin-resistant Staphylococcus aureus skin infection [9,10]. These mechanisms are particularly important in surgical wounds, where bacterial contamination, tissue hypoxia, inflammation, and impaired cellular repair can rapidly convert an uncomplicated incision into a clinically significant wound complication.

Clinically, preoperative opioid misuse has been associated with higher postoperative morbidity, mortality, resource use, and adverse recovery after elective orthopedic surgery [11]. The literature also emphasizes that chronic opioid exposure complicates perioperative management by increasing tolerance, dependence, pain-control difficulty, and postoperative risk [12]. However, most available evidence comes from high-income countries and selected surgical specialties. Few studies have directly compared postoperative wound healing outcomes between narcotic drug abusers and non-abusers in general surgical settings, and evidence from Bangladesh remains especially limited. In routine practice, this gap restricts risk stratification, counseling, antibiotic planning, wound surveillance, and referral for addiction-related support.

Because narcotic drug abuse commonly coexists with smoking, malnutrition, anemia, poor hygiene, delayed care seeking, and irregular follow-up, its independent and practical contribution to wound complications needs local evaluation. Therefore, this study was conducted to assess the effects of narcotic drug abuse on surgical wound healing among postoperative patients.

II. METHODS

This comparative observational study was conducted in the Department of Surgery of (hospital name) during the defined study period of (duration), from (start) to (end). A total of 80 patients who underwent surgical procedures were included in the study, with 40 patients in the narcotic drug abuser group and 40 patients in the non-abuser group. Participants were selected through purposive sampling based on the eligibility criteria.

Patients of either sex and adult age group who underwent elective or emergency surgery and provided informed written consent were included. Patients with severe immunosuppression, malignancy, chronic steroid therapy, major vascular insufficiency, incomplete records, or those lost to follow-up were excluded. Narcotic drug abuse was defined based on history of regular use of substances such as Yaba or methamphetamine, heroin, cannabis, Phensedyl, injectable opioids, or multiple substances before surgery. Non-abusers were patients without any history of narcotic drug abuse.

After enrolment, relevant sociodemographic information, including age, sex, residence, occupation, and socioeconomic status, was recorded. Clinical variables such as body mass index, smoking history, alcohol use, diabetes mellitus, hypertension, anemia, and nutritional status were documented. Among narcotic drug abusers, type of substance, route of use, duration of abuse, frequency of abuse, withdrawal symptoms, and rehabilitation history were also recorded. Surgical variables, including type of surgery, surgical site, wound class, duration of surgery, antibiotic prophylaxis, and drain use, were noted from clinical assessment and operative records.

Postoperative wound healing was assessed clinically during hospital stay and follow-up visits. Outcomes included wound healing status, surgical site infection, wound discharge, wound dehiscence, skin edge necrosis, need for secondary suturing, wound debridement, abscess formation, readmission, reoperation, time to healthy granulation, time to complete epithelialization, time to suture removal, postoperative hospital stay, and total wound healing time.

Collected data were checked, coded, and analyzed using SPSS (v 26.0). Categorical variables were expressed as frequency and percentage, while continuous variables were expressed as mean ± standard deviation. Chi-square test or Fisher's exact test was used for categorical variables, and independent-samples t-test was used for continuous variables. A p-value <0.05 was considered statistically significant. Ethical approval was obtained from the institutional ethics committee, and written informed consent was obtained from all participants.

III. RESULTS

The majority of narcotic drug abusers were aged 20–29 years (14; 35.0%), followed by 30–39 years (13; 32.5%), whereas non-abusers were most commonly aged ≥50 years (12; 30.0%) and 40–49 years (12; 30.0%). Mean age was significantly lower among narcotic drug abusers than non-abusers, 34.8 ± 9.6 years versus 43.6 ± 12.2 years, p=0.001. Male predominance was observed in both groups, but it was higher among narcotic drug abusers (36; 90.0%) than non-abusers (28; 70.0%), p=0.048. Residence, occupation, and socioeconomic status did not differ significantly between the groups.

Table 1. Sociodemographic characteristics of the study participants

Variables	Category	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	Total (n = 80)	p-value
		n (%)			
Age (years)	<20	2 (5.0)	1 (2.5)	3 (3.8)	0.025
	20–29	14 (35.0)	5 (12.5)	19 (23.8)	
	30–39	13 (32.5)	10 (25.0)	23 (28.8)	
	40–49	8 (20.0)	12 (30.0)	20 (25.0)	
	≥50	3 (7.5)	12 (30.0)	15 (18.8)	
	Mean ± SD	34.8 ± 9.6	43.6 ± 12.2	39.2 ± 11.8	0.001
Sex	Male	36 (90.0)	28 (70.0)	64 (80.0)	0.048
	Female	4 (10.0)	12 (30.0)	16 (20.0)	
Residence	Urban	21 (52.5)	18 (45.0)	39 (48.8)	0.655
	Rural	19 (47.5)	22 (55.0)	41 (51.2)	
Occupation	Service holder	6 (15.0)	10 (25.0)	16 (20.0)	0.5
	Businessman	8 (20.0)	7 (17.5)	15 (18.8)	
	Laborer	12 (30.0)	6 (15.0)	18 (22.5)	
	Student	4 (10.0)	5 (12.5)	9 (11.2)	
	Unemployed	10 (25.0)	12 (30.0)	22 (27.5)	
Socioeconomic status	Low	24 (60.0)	16 (40.0)	40 (50.0)	0.196
	Middle	15 (37.5)	22 (55.0)	37 (46.2)	
	High	1 (2.5)	2 (5.0)	3 (3.8)	

In Table 2, normal BMI was observed in most participants of both groups: 25 (62.5%) among narcotic drug abusers and 23 (57.5%) among non-abusers. Smoking history was significantly more common among narcotic drug abusers (28; 70.0%) compared with non-abusers (14; 35.0%), p=0.003. Alcohol use, diabetes mellitus, hypertension, anemia, and nutritional status were more frequent among narcotic drug abusers in some categories, but the differences were not statistically significant.

Table 2. Clinical profile and comorbidities of the study participants

Variables	Category	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	Total (n = 80)	p-value
		n (%)			
BMI category	Normal	25 (62.5)	23 (57.5)	48 (60.0)	0.876
	Overweight	10 (25.0)	12 (30.0)	22 (27.5)	
	Obese	5 (12.5)	5 (12.5)	10 (12.5)	
Smoking history	Present	28 (70.0)	14 (35.0)	42 (52.5)	0.003
	Absent	12 (30.0)	26 (65.0)	38 (47.5)	
Alcohol use	Present	10 (25.0)	3 (7.5)	13 (16.2)	0.066
	Absent	30 (75.0)	37 (92.5)	67 (83.8)	
Diabetes mellitus	Present	5 (12.5)	10 (25.0)	15 (18.8)	0.252
	Absent	35 (87.5)	30 (75.0)	65 (81.2)	
Hypertension	Present	4 (10.0)	8 (20.0)	12 (15.0)	0.348
	Absent	36 (90.0)	32 (80.0)	68 (85.0)	
Anemia	Present	12 (30.0)	6 (15.0)	18 (22.5)	0.18
	Absent	28 (70.0)	34 (85.0)	62 (77.5)	
Nutritional status	Normal	26 (65.0)	34 (85.0)	60 (75.0)	0.069
	Malnourished	14 (35.0)	6 (15.0)	20 (25.0)	

Table 3 shows the pattern of substance abuse among the exposed group. Yaba or methamphetamine was the most commonly abused substance among narcotic drug abusers (16; 40.0%), followed by heroin (8; 20.0%) and cannabis (6; 15.0%). The most common route of drug use was inhalation (17; 42.5%), followed by oral use (14; 35.0%). More than half of the participants had a duration of abuse of 1–5 years (22; 55.0%), and daily abuse was reported by 21 (52.5%). Withdrawal symptoms were present in 24 (60.0%), while only 7 (17.5%) had a previous rehabilitation history.

Table 3. Pattern of substance abuse among the exposed group (n = 40)

Variables	Category	n (%)
Main type of narcotic drug abused	Yaba, methamphetamine	16 (40.0)
	Heroin	8 (20.0)
	Cannabis	6 (15.0)
	Phensedyl	5 (12.5)
	Injectable opioid	3 (7.5)
	Multiple substances	2 (5.0)
Route of drug use	Oral	14 (35.0)
	Inhalation	17 (42.5)
	Intravenous	9 (22.5)

Duration of abuse	<1 year	5 (12.5)
	1–5 years	22 (55.0)
	>5 years	13 (32.5)
Frequency of abuse	Occasional	5 (12.5)
	Regular	14 (35.0)
	Daily	21 (52.5)
History of withdrawal symptoms	Yes	24 (60.0)
	No	16 (40.0)
Previous rehabilitation history	Yes	7 (17.5)
	No	33 (82.5)

In Table 4, emergency surgery was more common among narcotic drug abusers (24; 60.0%), while elective surgery was more common among non-abusers (22; 55.0%). The abdomen was the most common surgical site in both groups (18; 45.0%) among narcotic drug abusers and 19 (47.5%) among non-abusers. Clean-contaminated wounds were the most frequent wound class overall (28; 35.0%). Most operations lasted 1–2 hours (23; 57.5%) in the narcotic drug abuser group and 24 (60.0%) in the non-abuser group. None of the surgical characteristics differed significantly between the groups.

Table 4. Surgical characteristics of the study participants

Variables	Category	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	Total (n = 80)	p-value
		n (%)			
Type of surgery	Emergency	24 (60.0)	18 (45.0)	42 (52.5)	0.263
	Elective	16 (40.0)	22 (55.0)	38 (47.5)	
Surgical site	Abdomen	18 (45.0)	19 (47.5)	37 (46.2)	0.948
	Limb	16 (40.0)	14 (35.0)	30 (37.5)	
	Perineum	4 (10.0)	4 (10.0)	8 (10.0)	
	Chest	2 (5.0)	3 (7.5)	5 (6.2)	
Wound class	Clean	9 (22.5)	15 (37.5)	24 (30.0)	0.248
	Clean-contaminated	13 (32.5)	15 (37.5)	28 (35.0)	
	Contaminated	11 (27.5)	7 (17.5)	18 (22.5)	
	Dirty or infected	7 (17.5)	3 (7.5)	10 (12.5)	
Duration of surgery	<1 hour	7 (17.5)	10 (25.0)	17 (21.2)	0.461
	1–2 hours	23 (57.5)	24 (60.0)	47 (58.8)	
	>2 hours	10 (25.0)	6 (15.0)	16 (20.0)	
Antibiotic prophylaxis given	Yes	38 (95.0)	39 (97.5)	77 (96.2)	1
	No	2 (5.0)	1 (2.5)	3 (3.8)	
Drain used	Yes	19 (47.5)	16 (40.0)	35 (43.8)	0.652
	No	21 (52.5)	24 (60.0)	45 (56.2)	

Normal wound healing was more common among non-abusers (33; 82.5%), compared with narcotic drug abusers (22; 55.0%). Delayed wound healing was significantly higher among narcotic drug abusers (18; 45.0%) than non-abusers (7; 17.5%), p=0.015. Surgical site infection was also significantly higher among narcotic drug abusers (16; 40.0%), compared with non-abusers (6; 15.0%), p=0.023. Wound discharge was significantly more frequent in narcotic drug abusers (15; 37.5%), than non-abusers (5; 12.5%), p=0.019. Other wound-related outcomes, including wound dehiscence, skin edge necrosis, secondary suturing, and wound debridement, were higher among narcotic drug abusers but not statistically significant.

Table 5. Postoperative wound healing status among the study participants

Variables	Category	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	Total (n = 80)	p-value
		n (%)			
Wound healing status	Normal healing	22 (55.0)	33 (82.5)	55 (68.8)	0.015
	Delayed healing	18 (45.0)	7 (17.5)	25 (31.2)	
Surgical site infection	Present	16 (40.0)	6 (15.0)	22 (27.5)	0.023
	Absent	24 (60.0)	34 (85.0)	58 (72.5)	
Wound discharge	Present	15 (37.5)	5 (12.5)	20 (25.0)	0.019
	Absent	25 (62.5)	35 (87.5)	60 (75.0)	
Wound dehiscence	Present	8 (20.0)	2 (5.0)	10 (12.5)	0.087
	Absent	32 (80.0)	38 (95.0)	70 (87.5)	
Skin edge necrosis	Present	5 (12.5)	1 (2.5)	6 (7.5)	0.201
	Absent	35 (87.5)	39 (97.5)	74 (92.5)	
Need for secondary suturing	Yes	6 (15.0)	1 (2.5)	7 (8.8)	0.108
	No	34 (85.0)	39 (97.5)	73 (91.2)	
Need for wound debridement	Yes	8 (20.0)	2 (5.0)	10 (12.5)	0.087
	No	32 (80.0)	38 (95.0)	70 (87.5)	

Wound healing time was significantly prolonged among narcotic drug abusers compared with non-abusers. Time to healthy granulation was 6.2 ± 1.8 days among narcotic drug abusers and 4.3 ± 1.2 days among non-abusers (p<0.001). Time to complete epithelialization was also longer among narcotic drug abusers (11.8 ± 3.5 days versus 8.4 ± 2.7 days, p<0.001). Similarly, time to suture removal, postoperative hospital stay, and total wound healing time were significantly higher among narcotic drug abusers, with total wound healing time being 19.4 ± 6.2 days compared with 13.1 ± 4.4 days among non-abusers (p<0.001).

Table 6. Comparison of wound healing time between groups

Variables	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	p-value
	Mean ± SD		
Time to healthy granulation (days)	6.2 ± 1.8	4.3 ± 1.2	<0.001
Time to complete epithelialization (days)	11.8 ± 3.5	8.4 ± 2.7	<0.001
Time to suture removal (days)	13.1 ± 2.4	10.3 ± 1.9	<0.001
Postoperative hospital stay (days)	9.6 ± 3.1	6.8 ± 2.2	<0.001
Total wound healing time (days)	19.4 ± 6.2	13.1 ± 4.4	<0.001

Postoperative complications were more frequent among narcotic drug abusers than non-abusers. Delayed wound healing was the most common complication, affecting 18 (45.0%) narcotic drug abusers and 7 (17.5%) non-abusers, p=0.015. Surgical site infection was reported in 16 (40.0%) narcotic drug abusers and 6 (15.0%) non-abusers (p=0.023). Wound discharge was also significantly higher among narcotic drug abusers (15; 37.5%), compared with non-abusers (5; 12.5%), p=0.019. Abscess formation, skin edge necrosis, readmission, and reoperation were numerically higher among narcotic drug abusers, but the differences were not statistically significant.

Table 7. Distribution of postoperative complications among the study participants

Complications	Narcotic drug abusers (n = 40)	Non-abusers (n = 40)	Total (n = 80)	p-value
	n (%)			
Surgical site infection	16 (40.0)	6 (15.0)	22 (27.5)	0.023
Delayed wound healing	18 (45.0)	7 (17.5)	25 (31.2)	0.015
Wound dehiscence	8 (20.0)	2 (5.0)	10 (12.5)	0.087
Wound discharge	15 (37.5)	5 (12.5)	20 (25.0)	0.019
Abscess formation	6 (15.0)	1 (2.5)	7 (8.8)	0.108
Skin edge necrosis	5 (12.5)	1 (2.5)	6 (7.5)	0.201
Readmission	5 (12.5)	1 (2.5)	6 (7.5)	0.201
Reoperation	4 (10.0)	1 (2.5)	5 (6.2)	0.359

IV. DISCUSSION

In the present study, narcotic drug abuse was associated with significantly poorer surgical wound healing outcomes. Delayed wound healing was observed in 18 (45.0%) narcotic drug abusers compared with 7 (17.5%) non-abusers, p=0.015. Surgical site infection was also significantly higher among narcotic drug abusers, 16 (40.0%) versus 6 (15.0%), p=0.023, and wound discharge was more frequent, 15 (37.5%) versus 5 (12.5%), p=0.019. These findings indicate that narcotic drug abuse may adversely affect postoperative recovery through both biological and behavioral mechanisms.

The overall SSI rate in this study was 22 (27.5%), which was markedly higher than the global pooled rate of 2.5% [2]. This may be related to the inclusion of emergency, contaminated, and dirty wounds, along with higher smoking and malnutrition among narcotic drug abusers. Smoking was significantly more common among abusers, 28 (70.0%) versus 14 (35.0%), p=0.003, while malnutrition was also higher, 14 (35.0%) versus 6 (15.0%), p=0.069. These factors are recognized contributors to postoperative infection and may have worsened wound outcomes in the abuser group [13]. The demographic findings also support regional evidence, as narcotic drug abusers were younger, 34.8 ± 9.6 years versus 43.6 ± 12.2 years, p=0.001, and predominantly male, 36 (90.0%). Similar patterns of substance use among young adults and increasing methamphetamine or Yaba use have been reported in Bangladesh [4,5]. Therefore, narcotic drug abuse appears to affect a young, surgically active population. The higher SSI rate among abusers, 40.0% versus 15.0%, is consistent with previous surgical studies showing increased morbidity, complications, readmission, hospital stay, and wound infection among patients with opioid misuse or opioid use disorder [11,14,15]. The relatively high infection rate in this study may be due to the broader inclusion of different surgical sites and wound classes.

Findings from the spine surgery literature further support the present results. Opioid use disorder has been associated with spine-specific complications (aOR 1.51); general postoperative complications (aOR 1.63); longer hospital stay (aIRR 1.29); and higher hospital charges [16]. A large meta-analysis of 60 cohort studies involving more than 13 million participants found that perioperative opioid use was associated with prolonged

hospital stay (OR 1.74), postoperative complications (OR 1.72), reoperation (OR 2.38), and infection (OR 1.22) [17]. These findings parallel the present study, where postoperative hospital stay was significantly longer among narcotic drug abusers, 9.6 ± 3.1 days versus 6.8 ± 2.2 days, $p<0.001$. Total wound-healing time was also significantly prolonged, from 13.1 ± 4.4 days to 19.4 ± 6.2 days ($p<0.001$). Further support comes from studies reporting that opioid dependence increases surgical site infection, prolonged length of stay, complications, and hospital cost after lumbar fusion and knee arthroplasty [18,19].

However, findings are not fully consistent. The population-based study by Oh and Song [20] reported that preoperative opioid use alone was not significantly associated with mortality or morbidity after total joint arthroplasty, although combined opioid and glucocorticoid use increased complications. This variation may reflect differences between supervised opioid analgesic use and illicit narcotic abuse, as the present study included Yaba or methamphetamine, heroin, cannabis, Phensedyl, injectable opioids, and polysubstance use, which may be linked with poorer hygiene, malnutrition, withdrawal, delayed follow-up, and greater infection exposure.

Biological evidence provides plausible mechanisms for delayed healing among narcotic drug abusers. Opioids can modulate innate and adaptive immune function, alter host defense, and influence inflammatory response [6,7]. Opioids may also affect angiogenesis, which is essential for granulation tissue formation and epithelial repair [8]. In the present study, time to healthy granulation was longer among abusers (6.2 ± 1.8 days vs. 4.3 ± 1.2 days; $p<0.001$), and time to epithelialization was also delayed (11.8 ± 3.5 days vs. 8.4 ± 2.7 days; $p<0.001$). Methamphetamine-related evidence is also relevant because Yaba or methamphetamine was the commonest substance in this study, 16 (40.0%). Harmful effects of methamphetamine on infection and immunity, including impaired innate immune response and worsening of Staphylococcus aureus skin infection, have been reported previously [9,10].

Injection-related and behavioral factors may further explain the observed outcomes. Wounds, cellulitis, abscesses, and soft-tissue infections are common among people who inject drugs [21]. Delayed care-seeking, self-treatment, and non-prescribed antibiotic use have also been reported among people who inject drugs with skin and soft-tissue infections [22]. These factors may explain why wound dehiscence, abscess formation, readmission, and reoperation were numerically higher among narcotic drug abusers in this study, although the differences were not statistically significant, probably because of the small sample size. Poor nutritional status may also contribute, as hypoalbuminemia has been shown to increase surgical site infection risk [23].

Limitations of the study: This study was limited by its single-center design and small sample size. Narcotic drug abuse history was based mainly on self-report without toxicological confirmation, so underreporting may have occurred. Possible confounders, such as smoking, anemia, nutritional status, wound class, and emergency surgery, may have influenced the findings. Long-term follow-up was also limited.

V. CONCLUSION

The study concluded that narcotic drug abuse was significantly associated with impaired surgical wound healing. Narcotic drug abusers had higher rates of delayed wound healing, surgical site infection, wound discharge, prolonged wound healing time, delayed suture removal, and longer postoperative hospital stay compared with non-abusers. Therefore, history of narcotic drug abuse should be considered an important perioperative risk factor, and such patients require careful preoperative assessment, infection prevention, nutritional optimization, and close postoperative wound monitoring.

VI. RECOMMENDATIONS

Routine preoperative screening for narcotic drug abuse is recommended. Patients with a history of substance abuse should receive proper optimization of nutrition, anemia, smoking, comorbidities, antibiotic prophylaxis, and wound care. Close postoperative follow-up is needed for early detection and management of wound complications. Referral for addiction counseling and rehabilitation should be considered. Further large-scale studies are recommended to confirm these findings.

Funding: *No funding sources*
Conflict of interest: *None declared*
Ethical approval: *The study was approved by the Institutional Ethics Committee.*

REFERENCES

[1]. Zhang S, Qi X, Wang Y, Fang K. Global burden of drug use disorders by region and country, 1990–2021. Frontiers in Public Health. 2024 Oct 29;12:1470809.
[2]. Mengistu DA, Alemu A, Abdukadir AA, Mohammed Husen A, Ahmed F, Mohammed B. Incidence of urinary tract infection among patients: systematic review and meta-analysis. INQUIRY: The Journal of Health Care Organization, Provision, and Financing. 2023 Apr;60:00469580231168746.

[3]. Monahan M, Jowett S, Pinkney T, Brocklehurst P, Morton DG, Abdali Z, Roberts TE. Surgical site infection and costs in low-and middle-income countries: A systematic review of the economic burden. PloS one. 2020 Jun 4;15(6):e0232960.
[4]. Al-Mamun F, Lin CY, ALmerab MM, Gozal D, Mamun MA. Past-year substance use behaviors among university admission test-takers: insights from Bangladesh. BMC Public Health. 2024 Oct 10;24(1):2769.
[5]. Khan SI, Khan MN, Irfan SD, Rumayan Hasan AM, Ross AG, Horng LM, Lachowsky N, Knudson G, Azim T. The effects of methamphetamine use on the sexual lives of gender and sexually diverse people in Dhaka, Bangladesh: A qualitative study. Archives of sexual behavior. 2021 Feb;50(2):479-93.
[6]. Eisenstein TK. The role of opioid receptors in immune system function. Frontiers in immunology. 2019 Dec 20;10:2904.
[7]. Plein LM, Rittner HL. Opioids and the immune system–friend or foe. British journal of pharmacology. 2018 Jul;175(14):2717-25.
[8]. Ondrovics M, Hoelbl-Kovacic A, Fux DA. Opioids: Modulators of angiogenesis in wound healing and cancer. Oncotarget. 2017 Feb 16;8(15):25783.
[9]. Salamanca SA, Sorrentino EE, Nosanchuk JD, Martinez LR. Impact of methamphetamine on infection and immunity. Frontiers in neuroscience. 2015 Jan 12;8:445.
[10]. Mihu MR, Roman-Sosa J, Varshney AK, Eugenin EA, Shah BP, Ham Lee H, Nguyen LN, Guimaraes AJ, Fries BC, Nosanchuk JD, Martinez LR. Methamphetamine alters the antimicrobial efficacy of phagocytic cells during methicillin-resistant Staphylococcus aureus skin infection. MBio. 2015 Dec 31;6(6):10-128.
[11]. Menendez ME, Ring D, Bateman BT. Preoperative opioid misuse is associated with increased morbidity and mortality after elective orthopaedic surgery. Clinical Orthopaedics and Related Research®. 2015 Jul;473(7):2402-12.
[12]. Hah JM, Bateman BT, Ratliff J, Curtin C, Sun E. Chronic opioid use after surgery: implications for perioperative management in the face of the opioid epidemic. Anesthesia & Analgesia. 2017 Nov 1;125(5):1733-40.
[13]. Rezaei AR, Zienkiewicz D, Rezaei AR. Surgical site infections: a comprehensive review. Journal of Trauma and Injury. 2025 Jun 27;38(2):71.
[14]. Wilson JM, Farley KX, Aizpuru M, Wagner ER, Bradbury TL, Guild GN. The impact of preoperative opioid use disorder on complications and costs following primary total hip and knee arthroplasty. Advances in orthopedics. 2019;2019(1):9319480.
[15]. Pirkle S, Reddy S, Bhattacharjee S, Shi LL, Lee MJ. Chronic opioid use is associated with surgical site infection after lumbar fusion. Spine. 2020 Jun 15;45(12):837-42.
[16]. Lui B, Weinberg R, Milewski AR, Ma X, Bustillo MA, Mack PF, White RS. Impact of preoperative opioid use disorder on outcomes following lumbar-spine surgery. Clinical Neurology and Neurosurgery. 2021 Sep 1;208:106865.
[17]. Luo M, Shi F, Wang H, Chen Z, Dai H, Shi Y, Chen J, Tang S, Huang J, Xiao Z. The impact of perioperative opioid use on postoperative outcomes following spinal surgery: a meta-analysis of 60 cohort studies with 13 million participants. The Spine Journal. 2024 Feb 1;24(2):278-96.
[18]. Mahamid A, Laver L, Alfandari L, Jabareen H, Martonovich N, Keren A, Behrbalk E. Opioid dependence increases complications and costs following lumbar spinal fusion: insights from a nationwide database. Journal of Clinical Medicine. 2025 Jun 3;14(11):3929.
[19]. Cohen Nissan E, Berkovich Y, Maman D, Yonai Y, Steinfeld Y, Berkovich Y. Opioid use disorder significantly increases complications and costs in primary and revision total knee arthroplasty a nationwide analysis and the case for preoperative screening. Journal of Clinical Medicine. 2025 May 29;14(11):3832.
[20]. Oh TK, Song IA. Association of preoperative opioid and glucocorticoid use with mortality and complication after total knee or hip arthroplasty. Journal of Korean Medical Science. 2024 Oct 28;39(41).
[21]. Sanchez DP, Tookes H, Pastar I, Lev-Tov H. Wounds and skin and soft tissue infections in people who inject drugs and the utility of syringe service programs in their management. Advances in Wound Care. 2021 Oct;10(10):571-82.
[22]. Gilbert AR, Hellman JL, Wilkes MS, Rees VW, Summers PJ. Self-care habits among people who inject drugs with skin and soft tissue infections: a qualitative analysis. Harm reduction journal. 2019 Dec 12;16(1):69.
[23]. Mostafa OE, Al-Allaf O, Tahir M, Hossain F, Blackwell J. Do hypoalbuminaemia increase the risk of surgical site infection in neck of femur fracture patients: a systematic review and meta-analysis. Cureus. 2024 May 30;16(5).