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The Effect Of Implementing A Bundle Of Evidence-Based Pain Management On Patient's Perception Of Pain And Clinical Outcomes

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Abstract
Background: *Evidence-based practice in pain management has been shown to provide improvements in patient outcomes.*
Aim: *this study* ***aimed to*** *determine the effect of implementing a bundle of evidence-based pain management to improve patients' perception of pain and clinical outcomes.*
Research design: *A quasi-experimental research design was used.*
Setting*: the study was conducted on 3 surgical units (general, orthopedics and oncology surgery in Sayed Galal Hospital*
Sampling: *a purposive sample of 70 adult patients was included in the study.*
Tools of data collection: *four tools were used,*
first tool*: a structured interviewing questionnaire.*
Second tool: *Physiological parameters data.*
Third tool: *Pain assessment by using The McGill Pain Questionnaire.*
Fourth tool: *Groningen Sleep quality Scale.*
Result*: the main results revealed that there was a statistically significant improvement in BP, HR, RR and* Pso_2 *in the study group after intervention. There was statistically significant reducing total pain severity in the study group as well compared to control group with p-value = (0.01*). There was a highly statistically significant improvement of sleep quality at 3rd day postoperatively, with a p-value of 0.001* among study group.*
Conclusion: *the implementation of a bundle of evidence-based pain management had a positive effect on reducing pain intensity, improvement of physiological parameters and sleep quality among the study group compared to control group.*
Recommendations: *this study recommended that, reduplication this study in a large probability sample, using a bundle of evidence-based pain management in a different-surgical-wards. Set pain assessment scale as a part of a routine measurement like a vital-signs in surgical units.*
Keywords: *A bundle of evidence based, clinical outcomes, pain management, perception.*

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I. Introduction

Poor outcomes, such as extended hospital stays, sleep disorders, delayed return to activity, and higher opioid use, are linked to ineffective postoperative pain management. In addition to failing to produce the intended result, conventional pain management techniques that rely solely on drugs (such as opioids) to relieve pain can have a number of negative physical and psychological side effects, such as delirium, anxiety, depression, and sleep disturbances ***(Liu, Wu & Chen, 2022).***

Evidence-based practice (EBP) is known as the use of scientific information to enhance clinical decision-making and procedures. Although advanced nursing practices are built on the Evidence-Based Practice (EBP), not all scenarios make use of it because the necessary skills are not always available. Applying EBP ensures that huge data sets are used quickly, that practices are carried out using the most effective and best standard ways, that correct care services are provided, and that patient outcomes, health status, and nursing care quality are all improved. ***(Katowa-Mukwato et al., 2021).***

Bundle of evidence-based pain management is a structured list of steps designed to guide nurses in the treatment of acute pain. The implementation of pain management care bundle would tailor treatment more closely with the patient by improving the structure and process of pain management delivery allowing better treatment and greater patient satisfaction ***(Moraes et al., 2022).***

Patients' perception of pain management has become an important criterion and relevant outcome measure for healthcare organizations. Patients expect optimal pain management that results in immediate and effective pain control and few side effects from pain or its treatment. In addition to adequate pain relief, overall patient satisfaction depends on several factors, including providing rapid intervention, involving patients in their own care, encouraging their pain communication, interacting with the healthcare provider, and building a trust-based relationship ***(Tawil, Iskandar & Salameh, 2018).***

A thorough evaluation of pain after surgery takes into account both physiological and behavioral reactions to pain in addition to self-reported pain perceptions; Symptoms of sympathetic activation, such as hypertension, tachycardia, and elevated breathing rate, may be signs of pain. Splinting, grimacing, moaning, grunting, hunching over, and reluctance to move are some of the behaviors that could be signs of discomfort. The most accurate way to quantify pain is by self-report, even though these nonverbal techniques offer valuable information. It's possible that a patient is still in pain even if there are no outward signs of discomfort or physiological reactions ***(Nordness, Hayhurst, Pandharipande, 2021).***

Significance of the study:

According to medical professionals, post-operative pain is a typical clinical disease that, if left untreated, can have a variety of detrimental effects on the patient, including some serious ones. According to statistics, acute postoperative pain affects around 43 million patients in the US, and 80% of these patients report moderate to severe pain. Furthermore, roughly half of surgical patients report pain that has not been eased ***(Adams, Varaei & Jalalinia, 2020).***

With up to 95.2% of patients in Africa experiencing postoperative pain, managing postoperative pain is still a significant challenge. At 4,24,36, and 48 hours following surgery, the percentage of patients in Egypt experiencing postoperative pain was61%,73%,67%, and 58% ***(El-bana & Attia, 2019).***

Theory of the study

This study based on comfort theory, developed by Kolcaba, is a holistic approach to patient care that focuses on maximizing comfort in healthcare settings. The theory emphasizes the importance of addressing components of comfort; (relief, ease, transcendence, and holistic comfort) to enhance patient comfort and improve overall health outcomes **(Lin et al, 2023)**.

Aim of the Study

The study aimed to; determine the effect of implementing bundle of evidence-based pain management to improve patients' perception of pain and clinical outcomes.

Research Hypothesis:

H1. Patients who would receive a bundle of evidence-based pain management would have significantly reduction in pain severity among postoperatively patients in the study group as compared to the control group.

H2. Patients who would receive a bundle of evidence-based pain management would have significantly improvement in physiological parameters and quality of sleep in the study group as compared to the control group.

Study design:

A quasi-experimental research design was used to conduct the study.

Technical design:

The technical design includes; the setting, subject & tools that used in the study.

Setting:

The three surgical units at Sayed Galal Hospital were the focus of this study. Patients on each of the 3 adult units are primarily specialty populations: general surgery, orthopedic surgery, and oncology surgery, with a capacity of 53, 42, and 30 beds, respectively.

Sampling:

Sample type:

A purposive sample was used.

Sample size

70 adult patients from both genders required post operatively would be involved in this study from the above-mentioned setting who agreed to participate in the study.

The sample was divided randomly and alternatively into two equal groups (35 patients for each group).

- **Group 1**: study group, they received a bundle of evidence-based pain management by the researcher and under prescribed hospital pain management.
- **Group 2:** control group, they received routine hospital pain management by hospital nursing staff.

The subjects were selected according to the following criteria:

Inclusion criteria

1-Adult patients from both gender>18 years old.
2-Complaint of pain with an active order of analgesic.
3-Able to communicate verbally and non-verbally.

Exclusion criteria

1-Patients had a history of cognitive dysfunction.
2-Patients with a medical condition that precluded their ability to participate in a 15-minute interview to collect data.
3-Patients receive medical treatment for chronic pain more 6 months.

Tools of data collection:

Four tools were used for data collection:

Tool I: Structured Interviewing Questionnaire which adapted and modified by the researcher from (El-bana & Attia.2019) and it consist of two parts:-

Part 1: Demographic data to cover the personal data of the studied patients as age, gender, and level of education.

Part 2: Assessment the characteristics of pain; location, pattern of pain, and factors aggravating pain.

Tool II: Physiological parameters data

It was developed by the researcher based on literature review to monitor changes in heart rate, peripheral O2 saturation, respiratory rate, and blood pressure.

Tool III: Pain assessment sheet

"The McGill Pain Questionnaire was used and adopted from Melzack. (1975). It consists of two assessments:

“Pain quality assessment"

It consists of eleven sensory and four affective pain descriptors. In McGill pain questionnaire, the patients were asked to select from a list of 15 descriptors that describe their pain quality such as (aching, Tender, cramping, Heavy, shooting, stabbing, sharp) and rating the intensity of each selected descriptor as (No pain =0, mild=1, moderate =2 and severe =3.

Scoring System:

The total score would be the summation of scores from sensory and affective domain;

- No pain = 0
- Mild pain =15
- Moderate = 30
- Severe= 45

"Pain Intensity assessment "

Ranged from 0-5 where 0 =no pain, 1=mild, 2= discomforting, 3= distressing, 4 = horrible 5 = excruciating.

Tool IV: Groningen sleep quality Scale

Sleep quality scale adopted from Hajonides et al. (2003) contained 15 statements, which were answered as true or false. One point was given if the answer is true in questions number 2, 3, 4, 5, 6, 7, 9, 11, 13, 14 and 15. One point was given if the answer is false in questions 8, 10 and 12.

Total score for quality of sleep was ranged as; good (0-5), fair (6-8) and poor (9-14).

Administrative design:

An official permission was obtained by submission of formal letter from the administrators of Faculty of Nursing, Helwan University to Managing Director of Sayed Galal hospital to get an approval for data collection to conduct the study after explanation of purpose of the study.

Operational design:
There were three distinct phases to the study that needed to be finished: planning, pilot study, and field work.

Preparatory phase:
It includes reviewing of related literature, and knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

Pilot study:
A pilot study was carried out to test the study tools in terms of its clarity, applicability, and efficiency. It was conducted on 7 patients of the study sample, and then they were excluded of the study sample. Data obtained from the pilot study were analyzed and accordingly the necessary modifications were done.

Content and tools validity:
The content validity of the tools was done by a panel of 5 experts and who reviewed the content of the tools for comprehensiveness, accuracy, clarity, relevance and applicability. Minor modifications were done.

The reliability:
It was conducted using the Cronbach's Alpha coefficient worker test, which showed that each tool had mild to moderate reliability and that the tools' items were generally homogeneous. The McGill Pain Questionnaire's reliability score, which was 0.786, was deemed adequate. Furthermore, the Groningen Sleep Quality tool's dependability was higher than 0.88 and deemed satisfactory.

Fieldwork:
According to the selected theoretical framework:
The actual field work was started at the beginning of October 2023 and was completed and ended on Mars 2024. The study time took about 6 months. The researcher visited the selected setting regularly, three days per week.
Field work includes three phases based on conceptual frame work for comfort theory:

I-First phase (Health care needs)
Regarding health care needs, each patient was assessed individually and data collection was filled by the researcher in the morning and afternoon shifts post-surgery. By using Tool (I); Structured Interviewing Questionnaire was filled for the study and control group by the researcher. In addition physiological parameters were assessed by tool (II), and pain assessment by tool (III). It took around ten to fifteen minutes for each patient.

II-Second phase (Comfort interventions)
Step 1: For the study group; preoperative pain education was done as the first step of a bundle of evidence-based pain management. Each patient was received two theoretical sessions; each interview session took approximately 30 to 35 minutes.

- **The first session**: the researcher interviewed the patients to deliver knowledge regarding brief about the nervous system, definition of pain, the difference between acute and chronic pain, sign and symptoms of pain, aggravating factors, and assessment of pain.
- **The second session**: the researcher explained knowledge concerning pharmacological management and non-pharmacological pain management methods.
- The teaching methods involved lecture questioning, and discussion with the illustrative booklet.

Step 2: The other items of a bundle were implemented postoperatively and included; structured pain rounds every hour during the day and every 2 hours at night if the patient was awake for early detection of pain, administer of prescribed medication as ordered, communication with the patient about the next analgesic dose, and offer menu-driven adjunctive non-pharmacological therapies.

- Menu of non-pharmacological therapies was included (deep breathing exercise, moist cold compress, moist warm compress, meditation, and massage). The study group patients were selecting the most preferable therapy based on perioperative education.
- Deep breathing technique: The study patients were instructed on how to perform the deep breathing by the researcher. Every hour, the patient takes 10 deep breaths.
- Moist warm and cold compresses placed 10 cm upper incision area for 10 minutes, the intervention was delivered three times / day for 3 days.

- Mindfulness Meditation: Patients were told to focus on the flow of their breath, with their eyes closed, and to nonjudgmentally become aware of their thoughts, senses, and feelings, while maintain focus on the breath in the nostrils.
- Massage: Each massage session consisted of a 1to3minute assessment, including comfortable positioning of the patient, and 20 minutes of hands-on massage that focused on the areas as indicated by the patient. Typically requested areas were the back, neck, and shoulders. The researcher did not massage within 2 inches of any surgical wound. The tapotement and effleurage technique was applied by the researcher.

Group (2): they received the routine care provided by nurses; routine care was included pain control medications as prescribed and monitoring vital signs every 6hours.

Third phase (Enhanced Comfort):

The researcher evaluates the effect of implementing a bundle of evidence-based pain management on patients' perceptions of pain and clinical outcomes as measured by tools (II, III, and IV). Objectively, physiological parameters are measured by the researcher (1-2 hours, 4–8 hours, 2nd day, and 3rd day) postoperatively after implementing a bundle. Subjectively, the patient verbalizes the pain intensity and quality by using a short McGill Pain Questionnaire and applying it (1-2 hours, 4–8 hours, 2nd day, and 3rd day) postoperatively after implementing a bundle. For sleep quality, the Groningen sleep quality scale was filled out twice: once in the morning of the second day and again in the morning of the third day postoperatively after intervention. The same evaluation was done for the patients in the control group after routine hospital care.

Ethical consideration:

Before beginning the study, approvals were obtained from the faculty ethics committee and the dean. Every participant in the research gave their verbal consent. The shared subjects received clarification on the goals and advantages of the study as well as information about the study's instruments, which included the questionnaires they were required to complete. Concerning the study data's confidentiality, they were comforted.

Statistical Design:

The data obtained was analyzed, and presented in numbers, percentages, in the form of tables and figures as required and suitable statistical tests were used to test the significance of the results obtained.

The following statistical techniques were used:

Percentage, Mean value, Standard deviation, Chi-square (X2), Correlation test (r) and Proportion probability (P-value).

II. Significance Of Results

- When P> 0.05 it is statistically insignificant difference.
- When P< 0.05 it is statistically significant difference.
- When P< 0.01or P< 0.001 it is high statistically significant difference.

The main findings of this study were summarizes as follows:

Table (1): this table reveals that mean age of the control group was 49.74±13.93 years and 45.83±13.73 years of the study group. (62.9%) and (57.1%), of the control and study group were male, respectively. (31.4%) of the control group and (28.6%) of study group had university education.

Table (2): this table reveals that (57.1%) of the control group and (60%) of the study group had abdominal pain. (57.1%) of the control group, and (51.4%) of the study group had constant pain. (77.1%) of the control group and, (68.5%) of the study group had repositioning as a factor aggravating pain.

Table (3): this table reveals that concerning heart rate, there was no statistically significant difference between patients in both groups at 1-2hours, 4-8hours, and 2nd days, while the difference was statistically significant at the 3rd day postoperatively. Regarding respiratory rate, oxygen saturation, and blood pressure there was no statistically significant difference between patients in both groups at 1-2hours and 4-8hours. While the differences were statistically significant at the 2nd and 3rd days.

Table (4): illustrated that there was a statistically significant difference among the study and control groups regarding total severity of pain after (1-2 hours, 4–8 hours, 2nd day, and 3rd day) with a p-value of 0.01.

Table (5): this table reveals that there was a highly statistically significant difference among the study and control groups regarding sleep quality at 3rd day postoperatively, with a p-value of 0.001.

Table (6): this table reveals that concerning the control group, at the 3rd day post-operation, there was a highly positive statistical correlation between total severity of pain and total sleep quality scale at a p value of 0.0001. According to the study group, there was a positive statistically significant correlation between the total severity of pain and the total sleep quality scale at a p value of 0.016.

Table (1): Frequency distribution of patients in both groups according to their demographic characteristics (n=35) for each group.

Demographic characteristics	The Studied patients (n=70)			
	Control Group (n=35)		Study Group (n=35)	
	N	%	N	%
Age:				
Range	22-72		20-72	
Mean±SD	49.74±13.93		45.83±13.73	
Gender:				
•Male	22	**62.9**	20	**57.1**
•Female	13	37.1	15	42.9
Level of Education:				
•Illiterate	7	20	7	20
•Primary	2	5.7	7	20
•Preparatory	5	14.3	3	8.6
•Secondary	10	28.6	8	22.8
•University Education	11	**31.4**	10	**28.6**

Table (2): Comparison between the control and study patients' regarding characteristics of Pain (n=35 for each group).

Characteristics of pain	Studied patients (n = 70)				X2	*P- Value*
	Control Group (n=35)		Study Group (n=35)			
	N	%	N	%		
location of pain:						
Abdomen	20	**57.1**	21	**60**		
Neck	2	5.7	2	5.7		
Shoulder	3	8.6	1	2.9		
Breast	2	5.7	0	0		
Groin	2	5.7	6	17.1	13.024	0.611
Rectum	3	8.6	1	2.9		
Hip	2	5.7	0	0		
Anus	1	2.9	0	0		
Back	0	0	2	5.7		
Foot	0	0	2	5.7		
Pattern of pain:						
constant	20	**57.1**	18	**51.4**	1.422	0.866
periodic	7	20	9	25.7		
intermittent	7	20	8	22.9		
Momentary	1	2.9	0	0		
Factors aggravating pain:	27	**77.1**	24	**68.5**	0.662	0.434
Repositioning	2	5.7	3	8.6		
Talking	6	17.1	8	22.9		
Coughing						

Table (3): Comparison between the study and control group patients regarding physiological parameters after intervention at 1-2hrs, 4-8hrs, 2nd days, and 3rd days postoperatively

Items	1-2hrs		4-8hrs		2nd day		3rd day		F, p
	Control	Study	Control	Study	Control	study	Control	Study	
	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	Range x̄ ±SD	
Heart rate	66-105 90.63±8.98	77-105 92.11±7.65	62-104 91.31±10.02	77-105 90.57±7.36	59-106 92.11±10.35	72-106 88.74±8.06	58-105 93.06±10.48	71-101 85.86±7.25	15.997,
t, P-Value	0.745, 0.459		0.353, 0.725		1.520, 0.133		3.342, **0.001***		**0.001***
Respiratory rate	15-24 19.94±2.65	16-24 20.83±1.92	14-23 20.114±2.22	17-23 20.49±1.49	16-24 20.63±1.93	16-22 19.69±1.73	15-24 20.94±2.287	16-24 19.71±2.04	4.790,
t, P-Value	1.604, 0.113		0.823, 0.413		2.155, **0.03***		2.373, **0.02***		**0.001***
Oxygen saturation	90-97 93.86±1.83	95-99 92.63±12.72	88-98 92.11±13.06	93-98 95.71±1.41	89-97 91.66±12.77	93-99 96.49±1.27	87-97 91.63±13.09	94-99 96.54±1.24	20.079,
t, P-Value	0.565, 0.574		1.621, 0.110		2.227, **0.03***		2.210, **0.03***		**0.000***
Blood pressure	110/60-160/100 136.1/83.7± 13.71	120/70-160-100 137/79.7± 11.26	100/60-160/100 135.7/85.4± 15.20	110/70-150/100 132/80.9± 11.26	100/60-160/100 137.1/86± 16.4	110/70-140/100 128.3/79.7±9.2	110/60-160/100 139.7/89.7 ±13.5	110/70-140/100 126.7/76.9± 8.7	22.889, **0.000***
t, P-Value	0.143, 0.887		1.162, 0.249		2.788, **0.007***		4.693, **0.000***		

Table (4): Comparison between the control and study patients' total severity of pain after implementation of a bundle.

Total severity of pain	Studied patients (n = 70)																X2, *P Value*
	Control Group (n=35)								Study Group (n=35)								
	1-2hrs		4-8hrs		2nd day		3rd day		1-2hrs		4-8hrs		2nd day		3rd day		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
No pain	0	0	0	0	1	2.9	2	5.7	0	0	0	0	4	11.4	8	22.9	1.93,
Mild	35	**100**	35	**100**	34	**97.1**	31	**88.6**	33	**94.3**	35	**100**	31	**88.6**	27	**77.1**	**0.01***
Moderate	0	0	0	0	0	0	2	5.7	2	5.7	0	0	0	0	0	0	

***: Significant at P ≤ 0.05- x2 = chi-square test**

Table (5): Total sleep quality scale of both the study and control group patients at the 2nd and 3rd days post-intervention (n=35 for each group).

Total sleep Quality Scale	Studied patients				X2 P					X2 P
	2nd day postoperatively					3rd day postoperatively				
	Control Group		Study Group			Control Group		Study Group		
	N	%	N	%		N	%	N	%	
Poor (9-14)	12	34.2	11	31.4	0.120	19	**54.2**	8	22.9	5.024
Fair (6-8)	17	**48.6**	16	**48.6**	0.942	15	42.9	8	22.9	**0.001***
Good (0-5)	6	17.2	7	20		1	2.9	19	**54.2**	

Table (6): Correlation between the sleep quality and severity of pain among the study and control groups.

Total Studied patients (n=70)				
Items	**Control Group (n=35)** (3rd day post operation)		**Study Group (n=35)** (3rd day post operation)	
	Total severity of pain		Total severity of pain	
	r	P	R	P
Total sleep quality score (3rd day post operation)	**0.809**	**0.0001****	**0.405**	**0.016***

*** Significant at P ≤ 0.05 r: Pearson correlation coefficient**
****Highly significant at level; p < 0.01**

III. Discussion

Concerning demographic characteristics of the studied patients, the present study results revealed that the mean age of the control and study group were 49.74±13.93 years and 45.83±13.73 respectively. Difference in age between the studied groups due to, at any age, undergoing common surgeries suffering from pain. This finding was inconsistent with ***Mayhob & Elsalam, (2023)*** who studied Implementing evidence based nursing practices on reducing postoperative pain and reported that the mean age of 53.62. ± 10.24 years in the control group and 57.17± 9.35 years in the study group. Also, this finding in the same line with ***Venkatesan et al., (2022)*** entitles for postoperative pain control and formulate a comprehensive approach to the Implementation of Policy change for pain control in postoperative units and stated that the mean age of the studied patients was 49.45 ± 13.72 years.

Regarding the gender of the patients, the study's findings revealed that over 50% of the patients in the study and control groups were men. It is widely acknowledged that men and women react to painful conditions in different ways. According to ***Alema et al. (2023),*** who investigated post-operative pain management, more than half of the study participants were male. This result was consistent with their findings.

Concerning characteristics of pain, the study result revealed that more than half of the studied patients had abdominal pain. This finding due to more than half of the studied patient's undergone abdominal surgery. This finding was in the same line with ***Sharma, Thakur, Mudgal & Payal. (2020)***, who studied acute postoperative pain management among patients with elective surgery and stated that more than half of the studied patients had abdominal pain. Also, the study result showed that more than half of both control and study group had a constant pain. It may be due to a surgery – induced injury to a major nerve .This finding was in accordance ***Rau, Guo, Zhong & Kim, (2020)*** who studied Pain descriptors and reported that more than half of post-surgical wound pain had constant. Also this finding was in contrary with ***Büyükyilmaz & Aştı, (2010)*** who studied postoperative pain characteristics and reported more than three quarter of postoperative patients had intermittent pain.

Additionally, the study result revealed that more than three quarter and more than two third of the control group and study group, respectively had a repositioning as aggravating factor of pain. From the researcher's point of view, this might be due to changing position might place additional pressure on healing areas and increase pain .This finding was in the same line with ***Sakyi, et al. (2024)*** who studied pain expectations and experiences among post-operative patients and reported the majority of patients described change in position as aggravating factor of pain. Also, this finding was in contrary with ***Alharbi et al., (2020)***

who studied Pain perception assessment and reported that more than one quarter of the studied patients had coughing as aggravating factor for pain.

In the context of comparison between the study and control group patients regarding physiological parameters after intervention at 1-2 hours, 4–8 hours, 2 days, and 3 days postoperatively, the present study results illustrated that there was a statistically significant improvement at the 2nd and 3rd days postoperatively in respiratory rate, oxygen saturation, and blood pressure between the study and control group patients, and a statistically significant improvement at the 3rd day in heart rate. This may be due to decrease in the severity of pain reflecting on the physiological parameters. This result was inconsistent with ***El-bana, et al .(2019),*** who studied the efficacy of the protocol for pain control on clinical outcomes and reported that there was a statistically significant difference between patients in both groups in relation to respiratory rate and heart rate at the 2nd and 3rd days. They also found that the difference between the study and control groups according to oxygen saturation was not statistically significant. Differences in the study results of existing studies and the present study can be due to differences in the study environment, different inclusion and exclusion criteria, and the hemodynamic status of participants before the study.

Regarding sleep quality, the present study results illustrated that there was a highly statistically significant difference between the study and control groups regarding sleep quality on the 3rd day postoperatively. From the researcher's point of view, this might be due to the approach in which the non-pharmacological technique acts on a psychophysiological level, which illustrates how both the mind and the body are involved in the process of being quiet. This result was agreed upon by ***Alsayed, Faheem and Mostafa, (2023),*** who studied sleep quality among patients undergoing surgery and reported there was a highly statistically significant relation between study and control groups regarding sleep quality at the immediately postoperative day and the 3rd postoperative day.

The present study clarified that there was a highly positive statistical correlation between the total severity of pain and the total sleep quality scale. On the other hand, according to the study group, there was a positive statistically significant correlation between the total severity of pain and the total sleep quality scale. It may be related to sleep and pain are two physiological functions that interact with each other and have an impact one another. This finding was in line with ***Adel et al., (2022),*** who studied the efficacy of evidence based on post-operative pain and sleep quality for surgical patients and stated that there was a statistically significant positive correlation between the total mean score of the studied patient pain level and their sleep quality.

The present study illustrated that there was a statistically significant difference among the study and control groups regarding total severity of pain after (1-2 hours, 4–8 hours, 2nd day, and 3rd day). This suggests that the evidence based approach had a meaningful impact on the total severity of pain experienced by patients.

IV. Conclusions

There was a statistically significant improvement in heart rate at 3rd day postoperatively; also it found significant improvement in respiratory rate, blood pressure and oxygen saturation on 2nd and 3rd days post implementation of a bundle in the study group. There was a statistically significant reduction in the total severity of pain among the study group. There was a highly statistically significant improvement of sleep quality on the 3rd day postoperatively among the study group.

V. Recommendations

Based on these findings of the present study the researcher recommended;

Reduplication this study in a large probability sample, using a bundle of evidence-based pain management in a different surgical wards. Set pain assessment scale as a part of a routine measurement like a vital signs in surgical units.

References

[1] Alema, N.M., Asgedom, S.W., Welegebrial, B.G., Atey, T.M., Araya, E.M., Gebremedhin, H. & Hailesilase, G.G. (2023): Patients' Satisfaction With Post-Operative Pain Management In Ayder Comprehensive Specialized Hospital, Ethiopia: A Cross-Sectional Study. The Pan African Medical Journal, 45.

[2] Adams, S.D.M., Varaei, S. & Jalalinia, F. (2020): Nurses' Knowledge And Attitude Towards Postoperative Pain Management In Ghana. Pain Research And Management, 2020.

[3] Adel Mohamed Ibrahim, B., Fadl Abd Elkhalik, E., Tag El-Melook Saad, M., Mohammed Amein, N. & Hassan Abd El-Fatah, S. (2022): Efficacy Of Acupressure On Post-Operative Pain, Anxiety Level And Sleep Quality For Abdominal Surgical Patients. Egyptian Journal Of Health Care, 13(4), 1880-1891.

[4] Alharbi, H.A., Albabtain, M.A., Alobiad, N., Alhasan, J.A., Alruhaimi, M., Alnefisah, M., & Algarni, K.D. (2020): Pain Perception Assessment Using The Short-Form Mcgill Pain Questionnaire After Cardiac Surgery. Saudi Journal Of Anaesthesia, 14(3), 343-348.

[5] Alsayed, R., Faheem, J. & Mostafas, F. (2023): Effect Of Benson's Relaxation Therapy On Pain And Sleep Quality Among Patients Undergoing Thoracic Surgery. Egyptian Journal Of Health Care, 14(3), 579-592.

[6] Büyükyilmaz, F.E. & Aştı, T. (2010): Postoperative Pain Characteristics In Turkish Orthopedic Patients. Pain Management Nursing, 11(2), 76-84.

[7] El-Bana, H.A.A. & Attia, N.R. (2019): Efficacy Of Protocol For Pain Control On Clinical Outcomes Of Patients With Solid Tumor.Journal Of Nursing And Health Science, 8 (6), Pp 73-89.
[8] Katowa-Mukwato, P., Mwiinga-Kalusopa, V., Chitundu, K., Kanyanta, M., Chanda, D., Mwelwa, M. M.,,... & Carrier, J. (2021). Implementing Evidence Based Practice Nursing Using The Pdsa Model: Process, Lessons, And Implications. International Journal Of Africa Nursing Sciences, 14, 100261.
[9] Liu, C., Wu, S. & Chen, X. (2022). The Effect Of Massage Therapy On Pain After Surgery: A Comprehensive Meta-Analysis. Complementary Therapies In Medicine, 102892.
[10] Lin, Y., Zhou, Y., & Chen, C. (2023). Interventions And Practices Using Comfort Theory Of Kolcaba To Promote Adults' Comfort: An Evidence And Gap Map Protocol Of International Effectiveness Studies. Systematic Reviews, 12(1), 33.
[11] Mayhob, M. & Elsalam, M.A. (2023): Effect Of Implementing Evidence Based Nursing Practices On Reducing Postoperative Pain Among Patients Undergoing Abdominal Surgery. American Journal Of Nursing Research; 11(1): 1-11.
[12] Moraes, F.D.S., Marengo, L.L., Moura, M.D.G., Bergamaschi, C.D.C., De Sá Del Fiol, F., Lopes, L.C., & Barberato-Filho, S. (2022). Abcde And Abcdef Care Bundles: A Systematic Review Of The Implementation Process In Intensive Care Units. Medicine, 101(25), E29499-E29499.
[13] Nordness, M.F., Hayhurst, C.J. & Pandharipande, P. (2021): Current Perspectives On The Assessment And Management Of Pain In The Intensive Care Unit. Journal Of Pain Research, 1733-1744.
[14] Rau, P.L.P., Guo, Z., Zhong, R. & Kim, S. (2020). Chinese Pain Descriptors Used By Medical Personnel: A Case Study In Beijing. In Cross-Cultural Design. Applications In Health, Learning, Communication, And Creativity: 12th International Conference, Copenhagen, Denmark, Part Ii 22 (Pp. 176-190). Springer International Publishing.
[15] Sharma, S.K., Thakur, K., Mudgal, S. K. & Payal, Y.S. (2020): Acute Postoperative Pain Experiences And Satisfaction With Its Management Among Patients With Elective Surgery: An Observational Study. Indian Journal Of Anaesthesia, 64(5), 403-408.
[16] Sakyi, R., Appiah Boateng, E., Kusi-Amponsah Diji, A., Adjei Afful, K., Nimoh, V. A., Asakeboba Ajanaba, P., ... & Dzomeku, V. M. (2024). Pain Expectations, Experiences And Coping Strategies Used By Post-Operative Patients: A Descriptive Phenomelogical Study. Medrxiv, 2024-02.
[17] Tawil, S., Iskandar, K. & Salameh, P. (2018). Pain Management In Hospitals: Patients' Satisfaction And Related Barriers. Pharmacy Practice (Granada), 16(3).
[18] Venkatesan, G.S., Thulasiraman, S.V., Kesavan, B., Chinnaraju, N., Manoharan, E.V. & Kesavan, P. (2022): An Observational Study To Assess Postoperative Pain Control And Formulate A Comprehensive Approach To The Implementation Of Policy Change For Pain Control In Postoperative Units. Cureus, 14 (12).