

The Effect of Using Common Acupressure Points on Decreasing Pain

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Abstract: Pain management encompasses various types of pain experiences throughout an individual's life cycle. Pain experiences may include acute and chronic pain. The basics assessment of pain is to determine site and severity. According to this assessment, the nurse selects the proper nursing care to decrease or relieve pain. Acupressure is one of nursing techniques, which used in decreasing acute and chronic pain through its meridian according to the disease related. Nevertheless, there are common points that reduce any pain whatever its cause. The aim of the present quasi-experimental study was to determine the effect of using common points of acupressure on decreasing intensity in different types of pain. This was clinically tested at "the surgery units" of Alexandria Main University Hospital. The study comprised 90 adult patients with three different types of pain. Subjects of the present study included two groups namely (A) a control group of 45 patients and (B) an experimental group which comprising three equal groups and three different types of pain; low back pain related to lumbar disc prolapse, headache related to brain tumor and acute pain in the form of post operative minor surgical abdominal wound pain. Data of the study was collected using a tool entitled "pain assessment sheet". Two parts were included in the tool, one of them; was a Holistic pain assessment sheet and the other was the Visual Analogue Scale. Results of this study revealed that acupressure technique decrease acute post operative wound pain and chronic pain; brain tumor related headache and lumbar disc prolapse related low back pain by using common acupressure points. This concluded that common acupressure points decreasing acute and chronic pain. Acupressure points to decrease both acute and chronic pain are recommended.

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1. Introduction

Pain is a subjective feeling, with no known biologic markers. Proof of its presence and measurement of intensity rely entirely on self-reporting by the patient⁽¹⁾. It is a multidimensional and complex phenomenon, requiring effective assessment and management based on current knowledge. The multidimensional nature of pain requires an interdisciplinary approach for assessment and intervention⁽²⁾.

The major classifications of pain are acute and chronic pain. It can be classed according to its location in the body, as in headache, low back pain and post operative wound pain; or according to the body system involved. Pain is necessary to alert people that something is wrong with the body or that they should stop doing something that is hurting, but sometimes pain experience serves no function⁽³⁾.

A *headache or cephalgia* can be a symptom of a number of different conditions of the head and neck⁽⁴⁾. Headaches due to common brain tumors cause disturbances in the daily life of the person. The brain tissue itself is not sensitive to pain because it lacks pain receptors. Rather, the pain is caused by disturbance of the pain-sensitive structures around the brain. Several areas of the head and neck have these

pain-sensitive structures, which are divided in two categories: within the cranium (blood vessels, meninges, and the cranial nerves) and outside the cranium (the periosteum of the skull, muscles, nerves, arteries and veins, subcutaneous tissues, eyes, ears, sinuses and mucous membranes)⁽⁵⁾. Treatment of a headache depends on the underlying cause, but commonly involves analgesics⁽⁶⁾.

Low back pain (LBP) remains a substantial healthcare burden. Internationally, it is the second most common symptom leading patients to seek medical care, and claims for this disorder account for the highest proportion of costs of ongoing welfare benefits under the social security disability income program, for workers less than 45 years of age⁽⁷⁾.

The patient with LBP represents a challenge to the neurosurgeon, orthopedic surgeon, physiotherapist, psychiatrist, nurse and family practitioner. Lumbar disc prolapse (LDP) is considered the major cause among the numerous causes of LBP⁽⁸⁾.

Spinal pain caused by internal disc disruption is present in more than 39% of patients with chronic low back pain (CLBP)⁽⁹⁾. The lifetime prevalence for sciatica is estimated to range between 14% and 40%^(10, 11). Lumbar 5 (L5) radiculopathy (nerve root

affection that can result in pain, weakness, numbness, or difficulty in controlling a specific group of muscles) is the most common lumbosacral radiculopathy (50%) in USA, produced by disc herniation between L4 and L5. Sacral 1 (S1) radiculopathy is the next most common (46.3%), followed by L3 and L4 radiculopathy⁽¹⁰⁾.

Patients with postoperative surgical wounds often suffer from persistent **wound pain**. Studies show that more than 80 percent of patients with postoperative wounds are in constant pain – and half of them classify the pain as moderate to severe. Many patients say that the pain is the worst aspect of having a wound⁽¹²⁾. Wound pain is following tissue injury; persistent inflammation triggers the release of mediators that activate local pain receptors⁽¹³⁾. This results in greater sensitivity of the surrounding skin and deeper structures in the wound base⁽¹²⁾. The pain itself can be caused by tissue damage (nociceptive) or nerve damage (neuropathic)⁽²⁾.

Effective postoperative pain control is an essential component of the care of the surgical patient. Inadequate pain control, apart from being inhumane, may result in increased morbidity or mortality⁽¹⁴⁾. Evidence suggests that surgery suppresses the immune system and that this suppression is proportionate to the invasiveness of the surgery. Good analgesia can reduce this deleterious effect⁽¹⁵⁾.

The broad definition of pain management is the application of pharmacological and non-pharmacological strategies⁽¹⁶⁾. The nurse is one of the healthcare professionals who have frequent contact with patients receiving care in the community, at home, or in inpatient or outpatient settings. All are involved in serving as advocates for the person experiencing pain and in ensuring that pain treatment adheres to ethical principles and standards of quality⁽¹⁾.

Briggs (2003) suggests that effective pain management is a basic right and a complex nursing skill that requires a proactive approach. This places nurses in a unique position, as of all healthcare professionals they spend the most time with patients and therefore must be competent in pain management⁽¹⁷⁾.

Multiple nursing modalities have been used in treating pain, for example, heat therapy, classical message, acupuncture, relaxation techniques, transcutaneous electrical nerve stimulation (TENS), and acupressure (energetic massage)⁽¹⁸⁾.

Acupressure is a gentle but firm, deep, pressing, stimulating message by fingers over meridians and acu-points, which are the doorways leading in and out of the body and act as monitoring points for the functioning of human organs⁽¹⁹⁾. Each acu-point represents a particular tissue, organ, or

system and reflects the body's physical conditions; therefore, stimulating these acu-points influences the body's ability to function regarding the respective tissues or organs. Acupressure can access nearly all acu-points, and is safe with no side effects⁽²⁰⁾.

Traditional Chinese Medicine (TCM) believes that energy (Qi/Chi) flows through an invisible system of meridians (pathway) in the human body (20 meridians), in lines which pass through 365 acu-points connected to five vital organs⁽²¹⁾. These vital organs are the liver, heart, spleen, lungs and kidneys. Illness and injury are caused by obstructed or blocked flow of Qi. Along meridians are numerous acu-points that serve as external doors or openings to the meridians that access the internal tissues and organs of the body. They transport Qi so, the flow of Qi could be enhanced by stimulating acu-points along the meridians and then the body can function smoothly⁽²²⁾.

As regards the **therapeutic prosperities of acu-points**, they may have *local or adjacent* therapeutic prosperities, as each point located on a particular site is able to treat disorders of this area and nearby tissues and organs. Furthermore, clinical practice has shown that certain points may combine to produce effects on decreasing pain whatever its cause^(20, 22).

Therefore, the present study aimed to identify the effect of using common acupressure points on intensity of different types of pain.

Operational definition:

Pain:

- Acute pain is short sudden term pain of less than 3 months duration and occurs in response to injury or tissue damage as, post operative wound pain
- Chronic pain is persistent pain that lasts longer than 3 months, beyond the healing period of tissue damage. Common chronic pain complaints include headache related to brain tumor and low back pain related to lumbar disc prolapse.
- Holistic pain: is meant pain characteristics including site, radiation, quality, duration, precipitating factors and aggravating factors.

2. Materials and Method

I- Materials

Research design: a quasi-experimental was utilized for this study.

1- Setting:

This study was carried out at the general surgical and neurosurgical units of Alexandria Main University Hospital.

2- Subjects:

A convenient sample of 90 male and female adult patients was included in the study. Patients were equally assigned to control and study group (45 patients each). A control group namely (A) and study group namely (B).

The study group was divided into three equal groups (15 patients each). Group I (headache related to brain tumor), group II (low back pain related to lumbar disc prolapsed) and group III (post operative pain). All patients received routine hospital pharmacological management in the form of non-steroidal anti-inflammatory drugs (NSAIDs), H₂-blockers, and analgesics.

Subjects inclusion criteria were as follows:

- ♦ Age between 21-60 years.
- ♦ Conscious and able to communicate.
- ♦ Free from any associated illness.

3- Tool:

• One tool was used for data collection to assess pain before and after acupuncture technique, in addition to patient's sociodemographic data sheet.

• **Tool I:** "Pain Assessment Sheet". This tool was used to assess pain; it included the following main parts:

• **A-Holistic Pain Assessment;** this part was adopted from Polomano⁽²³⁾. It included criteria for assessing pain characteristics: site, radiation, quality, duration, precipitating factors and aggravating factors.

• **B- Visual Analogue Scale (VAS):** This part was used to measure pain intensity⁽²⁴⁾. It is a horizontal 10 cm line, has 2 anchors (ends), the left anchor usually represents "no pain", whereas the right anchor represents "worst possible pain". The patient was asked to place a mark indicating where the current pain lies on the line. A ruler is placed along the line and the distance from where the patient pointed out was measured from the left or low end and reported in centimeters to indicate the degree of pain.

4. Method:

1. A permission to carry out the study was obtained from the responsible authorities of the chosen settings after explanation of the aim of the study.
2. The researcher selected common points through many literature and researches^(28, 30, 33, 34).
3. Informed consents were obtained from the participants and confidentiality and privacy was asserted.
4. A pilot study was carried out on five patients to test the applicability and feasibility of the tool and no modifications were needed.
5. Preparation of the environment was carried out by maintaining a quite, warm, well ventilated room, free from noise as possible.

6. Ninety adult patients with pain were sequentially and enrolled into control and study group. The study group divided into three groups, according to the previously mentioned criteria.
7. An initial assessment was carried out using tool I for all subjects.
8. Preparation of the patients was done by using Modified Progressive Relaxation technique before each session. Modified Progressive Relaxation technique is a passive technique of relaxation, as the patient's muscles was not tensed, instead, the patients was learned to relax their muscles by concentrating on the feeling of relaxation within the muscles. Using calm, whispering tone of voice, slow manner of speech, and smiley face. Each patient was instructed to assume a comfortable position (sitting), close his/here eyes, and to concentrate on relaxing his muscles, while the researcher start to message each group of muscles sequentially, starting with muscles of the face, shoulders, and continuing downward to arm, forearms, hands, back, abdomen, thighs, calves, and feet. It takes two minutes.
9. All patients were exposed to nine acupuncture sessions, at a rate of three sessions per day (morning, afternoon, night), for three consecutive days. Each session take around 30-40 minutes. Pain assessment was done before and after each acupuncture session using tool I.
10. Acupuncture sessions implemented, using finger message in circular movements, in clockwise direction, at specified ten acu-points bilaterally for about 3-5 minutes for each point. Acu-points were allocated using the finger measurement method.
11. The effect of intervention was determined by comparing the initial assessment data and the final one.
12. Statistical analysis:

The collected data were coded and fed to SPSS\WIN. Descriptive statistics were analyzed using numbers, percentage, arithmetic mean, and standard deviation. Different testes of significance were used according to the type of variable. The following testes of significance were used:

ANOVA test.

*The level of significance selected for this study was P less than or equal to 0.05.

5. Results

Table (I): Frequency distribution of socio-demographic characteristics of the control and study groups

Concerning age, near half of the studied patients were in the age group of 30-40years, represented as 33% of the control group. The majority

of the studied patients were males, (87% of the headache group, 80% of the lumber disc prolapsed and 60% of the post operative wound) and it was 75% of the controls

The majority of the patients were illiterate (47% of the headache group, 53% of the lumber discs

prolapse and 100% patient of the post operative wound pain). 95% of the control group. Great number of the studied patients and the controls were work manually representing; 87%, 80% and 53% of the studied group and 82% of the control.

Table (I): Frequency distribution of socio-demographic characteristics of the control and study groups

Socio-demographic characteristics	Control group (A)		Group (B) (I)		Group (B) (II)		Group (B) (III)	
	No=45	%	No=15	%	No=15	%	No=15	%
1-Age:								
20-29	13	29	7	47	6	40	2	13
30-39	15	33	5	33	4	26	5	33
40-49	10	22	3	20	5	33	4	27
50-59	7	15	0	0	0	0	4	27
2-Gender								
Male	37	75	13	87	12	80	9	60
Female	8	25	2	13	3	20	6	40
3-Level of education								
Illiterate	19	95	7	47	8	53	20	100
Primary	15	42	4	26	4	26	0	0
Secondary	11	24	4	26	3	21	0	0
4-Occupation								
Clerical	0	0	1	7	0	0	1	7
Manual	37	82	13	87	12	80	8	53
House wife	8	25	2	13	3	20	6	40
Total	45	100	15	100	15	100	15	100

Table II (a). Frequency distribution of the effect of common acupressure points on holistic pain of the control and study groups

The results depicted changes in pain location after application of acupressure session's in-group (B) from, 91.1% to 15.5%. While in control group (A), and no change occurred in holistic pain before and after application of the conventional management.

As regards the onset of holistic pain, the results indicated that decrease in sudden pain in the study group (B) from 86.6% to 8.88% group. While for the control group (A), sudden pain changed from 95% before exposure to conventional management to 71%.

Moreover, it is obvious that duration of pain (16-30 min) changed for patients in study group (B) from 84.4% before to 11.1% after. Whereas, no change in holistic pain before and after application of the conventional management.

Table II (b). Frequency distribution of the effect of common acupressure points on holistic pain for the three Study groups

The table shows that in pain location after application of acupressure sessions in almost of the three groups from 93% to 13% of the headache

group, from 60% to 40% of the lumber prolapsed pain and from 100% to 13% of the postoperative wound pain. As regards the onset of holistic pain, the results indicated decrease in sudden pain in all the studied groups; from 60% to 0% in the headache group, from 60% to 7% in the lumber prolaps pain and from 100% to 20% in the postoperative wound pain respectively. Moreover, it is obvious that duration of pain was changed for patients in the three groups from before (73%, 86%, and 93% respectively) from (16-30 min) to after (0%, 13% and 20% respectively).

Table III. Mean, standard deviation, and F values of the effect of common acupressure points on the three groups of pain intensity as illustrated by the Visual Analogue Scale (VAS) mean score

The table shows that the mean score of pain through visual analogue scale (VAS) had significantly increased in the control group from 8.10 ± 0.91 to 9.15 ± 0.58 . On contrary, the mean score of three different type of pain through VAS had been decreased from 9.15 ± 0.85 to 3.20 ± 0.61 in headache group and from 9.10 ± 0.64 to 2.20 ± 0.41 in lumber disc prolapse group and from 9.10 ± 0.64 to 0.60 ± 0.754 in post operative wound pain. These changes are statistically significant (P value = .000).

Table II (a). Frequency distribution of the effect of common acupressure points on holistic pain of the control and study groups

Holistic pain	Control group (A)				Study group (B)			
	Before		After		Before		After	
	No (45)	% (100)	No (45)	% (100)	No (45)	% (100)	No (45)	% (100)
Location								
No pain	0	0	0	0	0	0	35	77.7
Local site	42	93.3	42	93.3	41	91.1	7	15.5
Trigger site	3	6.66	3	6.66	4	8.88	3	6.6
Onset								
No pain	0	0	11	24.4	0	0	34	75.5
Sudden	43	95	32	71	39	86.6	4	8.88
Gradual	2	4.4	2	4.44	6	13.3	7	15.5
Quality								
burning	11	24.4	11	24.4	13	28.8	4	8.88
Dull Aching	12	25.0	12	13.3	16	35.5	3	6.6
Throbbing	22	48.8	22	48.8	13	28.8	3	6.6
Duration (min)								
No pain (0)	0	0	11	24.4	0	0	36	81
(5 – 15)	13	28.8	10	22.2	2	4.4	4	8.88
(16 – 30)	10	22.2	10	22.2	38	84.4	5	11.1
(31 – 45)	22	48.8	14	31.1	5	11.1	0	0
Elevators								
No pain	0	0	0	0	0	0	34	75.5
Movement	34	75.5	34	75.5	28	62.2	7	15.5
straining	11	24.4	11	24.4	14	31.1	5	11.1
Nothing	0	0	0	0	3	6.6	0	0
Total	45	100	45	100	45	100	45	100

Table II (b). Frequency distribution of the effect of common acupressure points on holistic pain for the three study groups

Holistic pain	Study groups (B)											
	Group (I)				Group (II)				Group (III)			
	Before		After		Before		After		Before		After	
No (15)	% (100)	No (15)	% (100)	No (15)	% (100)	No (15)	% (100)	No (15)	% (100)	No (15)	% (100)	
Location												
No pain	0	0	13	87	0	0	12	60	0	0	10	67
Local site	14	93	2	13	12	60	3	40	15	100	2	13
Trigger site	1	7	0	0	3	40	0	0	0	0	3	20
Onset												
No pain	0	0	13	87	0	0	11	73	0	0	10	67
Sudden	12	60	0	0	12	60	1	7	15	100	3	20
Gradual	3	20	2	13	3	20	3	20	0	0	2	13
Quality												
burning	0	0	0	0	3	20	1	7	13	87	3	20
Dull Aching	14	93	2	13	0	0	0	0	2	13	1	7
Throbbing	1	7	0	0	12	60	3	20	0	0	0	0
Duration (min)												
No pain (0)	0	0	13	86	0	0	12	60	0	0	11	0
(5 – 15)	1	7	2	13	0	0	1	7	1	7	1	7
(16 – 30)	11	73	0	0	13	86	2	13	14	93	3	20
(31 – 45)	3	20	0	0	2	13	0	0	0	0	0	0
Aggravating factors												
No pain	0	0	13	87	0	0	11	100	0	0	10	67
Movement	5	33	1	7	11	73	3	20	12	60	3	20
straining	8	53	1	7	3	20	2	13	3	20	2	13
Nothing	2	13	0	0	1	7	0	0	0	0	0	0
Total	15	100	15	100	15	100	15	100	15	100	15	100

Table III Mean, standard deviation, and F values of the effect of common acupressure points on the three groups of pain intensity as illustrated by the Visual Analogue Scale (VAS) mean score

Pain Intensity (VAS)	Control group No(45)		Study group					
			Group (I) No (15)		Group (II) No (15)		Group (III) No (15)	
	Before	After	Before	After	Before	After	Before	After
	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD
	8.10±.91	9.15±.58	9.10±.64	3.20±.61	9.10±.64	2.20±.41	9.10±0.64	0.60±0.754
Test of significant								
Before				After				
F = 1.898 P = 0.079				F = 262.06 P = 0.000*				

F = ANOVA test *Significant difference at P level ≤ 0.05 .

4. Discussion

Up to 90 percent of patients with pain can be controlled by relatively simple means. Nevertheless, under treatment of pain is common⁽¹⁶⁾.

With pain relief as the goal, sufferers often try a variety of pain management techniques, determining which works best⁽¹⁾. The success or failure of each type of treatment is individual. What works for one person may not work for another person⁽²⁵⁾.

In acupuncture/acupressure, the Chinese maps detect the therapeutic points to decrease pain according to the disease of the patient. Also there are common points present to decrease any pain according to literatures^(20, 21).

Hence, this research carried out to determine the effect of common points of acupressure to decrease intensity in different types of pain.

In the present study, the intensity of pain decreased in studied group than in control group regardless its type of pain. As pain intensity ranged between severe and intractable pain in all studied patients before any intervention. Then it decreased to about half following acupressure therapy.

The findings results revealed that adding common points of acupressure therapy had positive effects on pain reduction, as the study groups had experienced sensory improvement in term of a significant pain intensity score measured by VAS, reduction of pain radiation, and less sensation of dull aching, throbbing, and burning.

Research evidence provides support for the efficacy of acupressure in the management of acute and chronic pain from a variety of causes. This evidence was in line with Stephanie & Harrison 1997 who said that, acupressure technique was effective in myofascial pain syndrome and its manifestations,

which include acute headache, low back pain and other manifestations⁽²⁶⁾.

The present study findings were in agreement with Kittang *et al.* (2001)⁽²⁷⁾, who proved in a randomized controlled trial that acupoint stimulation was equally effective as NSAIDs for patients in VAS measurement of pain. On the same hand, Jing *et al.* (2010)⁽²⁸⁾ found that acu-points stimulation was superior to NSAIDs in decreasing pain *intensity* as measured by numerical rating scale (NRS).

From the western medicine point of view, acupressure decreases pain in various mechanisms. First, according to gate control theory, acupressure increase impulse transmission of thick fibers (A-beta fibers) which block the conduction of pain signals by closing the gate⁽²⁹⁾.

Second, it was proved that acupressure results in stimulation of acu-points, which in turn stimulates the brain to release endogenous opioids (B-endorphins, and enkephalins), which are natural pain killers that induce analgesia. Shafshak (1985)⁽³⁰⁾ also found a significant elevation of Cerebro-Spinal Fluid (CSF) B-endorphin level, and CSF enkephalin level three times higher in pressure acupuncture group than in the control group with LBP.

In addition, it was reported that acupressure stimulates immunomodulatory response of the mediators of inflammation (cytokines; such as interleukin IL-1, IL-6 and tumor necrosis factors)⁽³¹⁾, which are produced by herniated nucleus pulposus. As acupressure stimulates release of Adrenocorticotrophic Hormone (ACTH), which reverses the inflammatory process at, herniated nucleus pulposus⁽³²⁾.

Mechanical pressure such as acupressure has been known to decrease tissue adhesion, promote relaxation, increase regional blood circulation,

increase parasympathetic nervous activity, increase intramuscular temperature, and decrease neuromuscular excitability. In addition, many researchers have demonstrated the effect of acupressure and acupuncture for sedation⁽³³⁾.

Finally, common acu-points stimulation increases the microcirculation around the nerve root, speed up the absorption of inflammatory products, restores the neurophysiological function and alleviates muscle spasm⁽³²⁾.

According to Chinese philosophy, there is the concept of "vital energy", "Chi", "energetic balance", and "energetic imbalance". Pain develops because normal Chi unable to resist the onslaught of pathogenic Chi. If pathogenic Chi overwhelms normal Chi then a functional disturbance of the body results. The major principle of treating a pain in Chinese medicine is to strengthen and protect normal Chi, and to maintain a meridian patent and balanced. Acupressure combines massage, gentle physical manipulation, and pressure along channels or rivers of energy "meridians". This restores the functional ability of normal Chi, especially the defensive Chi. As a result, the pain is blocked and the flow of blood and oxygen to the affected area is increased. This causes the muscles to relax and hence promotes healing^(21, 22).

So, in this study the researcher added type of passive relaxation technique which is called modified relaxation technique to achieve a better result in the accelerate and reduce pain intensity.

Despite the presence of three different types of pain in this, study and each of them had a separate map to reduce this pain; they met in the general map satisfactorily. Dupuis & Kathryn⁽³⁴⁾ supported this; they reported that, however, a number of points that are useful for acupressure in the sense. They are easy to apply acupressure techniques with and they have generally useful and precise functions that do not require a more developed diagnosis before use. Therefore, it can be applied for any disease.

Regarding local researches in there is a limited study in the effect of acupressure on decreasing pain. There is no researches studied the effect of using common points on decreasing pain in general.

So, according to the nursing school, everlastingly treat the patient, not the disease; as the goal of nursing practice has emphasis overall person. Consequently, the future positive treatment toward coping with pain must be expanded as an important nursing role by applying simple nursing technique "acupressure technique". We can reach to patient free from pain....why not?

Conclusion

This study concluded that, using common points acupressure technique was effective technique in reducing different types of pain intensity; acute and chronic pain than the conventional therapy.

Acupressure significantly improved pain sensations in patients with chronic pain (low back pain related to lumbar disc prolapse, headache related to brain tumor) acute pain related to post operative wound pain by using general points of acupressure.

Recommendations:

- Nurses' can play an essential role in teaching patients active self-management strategies of pain, as self-acupressure.
- A simple illustrated booklet including the general points which decrease pain and steps of acupressure technique should be available in the hospitals and clinics.
- A standard of nurses pain management have to be established in Egypt.
- Provide opportunity to attend continuing education program about pain management nursing.

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