



Original Research

## The Affirmation – Tapping on Pain Perception and Serotonin Serum Level of Post – Caesarian Section patients

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### ABSTRACT

**Introduction:** Affirmation - tapping interventions have been shown to reduce pain complaints in post-operative patients completing conventional treatment. This is thought to be due to serotonin performance but clinical studies have not been conducted. The aim was to compare the mean perception of the pain reported by post-operative patients given affirmation- tapping treatment with another treatment as a complementary nursing intervention. This was to see if the performance of the serotonin serum level is different from in other treatments.

**Methods:** We used a randomized post-test only control group design carried out in parallel in post-caesarean section patients. The sample totaled 40 patients divided into four groups (10 in affirmation, 10 in tapping, 10 in affirmation-tapping and 10 in the control). They were obtained through simple random sampling. The instruments included affirmation-tapping guidelines, Elisa kits and the McGill - Melzack Pain Questionnaire short-form (MPQsf). The independent variable was the intervention of affirmation-tapping and the dependent variables were pain perception and serotonin level. The data was analyzed using simple linear regression.

**Results:** The average variant of the serotonin levels in the affirmation-tapping treatment group was higher and thus differed significantly from the other groups.

**Conclusion:** Affirmation-tapping as a complementary nursing intervention can increase the serotonin serum levels of the post-caesarean section patients by complementing conventional treatments. Participant pain complaints were lowest in the affirmation-tapping group with the highest serotonin levels present and these were significantly different to the other groups. Affirmation – tapping was recommended as a complementary intervention in nursing post-operative patients that complements conventional treatment.

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### INTRODUCTION

Post-operative acute pain complaints result in tachycardia, increased blood pressure, decreased alveolar ventilation, and ultimately, wound healing disorders. Acute pain complaints can be chronic if it is not treated immediately. Due to neural sensitization centrally and peripherally from the N-Metil-D-Aspartate (NMDA) activation process, this results in long-term potentiation (long-term potentiation), so the pain complaint lasts longer (Argoff., 2014).

Despite the treatment, there are still many complaints of post-operative pain felt by the client.

Severe pain after cardiac surgery was reported by 28% of patients (Bordoni, Marelli, Morabito, Sacconi, & Severino, 2017), pain after thoracic surgery was reported in 25% of patients, even to be point of it being chronic. Moderate post-sectional caesarean pain was reported in 48.2% of patients, and the incidence of pain was 92,7% (IC 95%: 90,9 -94,2). The average level of pain intensity at the time of worst pain was 6,6 (dp=2,2) (Silva, Silva, & Tatagiba, 2017). Complaints of pain result in a disruption of the healing process, wound healing (Argoff., 2014) and a disruption of productivity (Kawai, Kawai, Wollan, &

Yawn, 2017). An incomplete pain intervention will reduce a person's quality of life (Gibbs et al., 2019).

Affirmation - tapping has been proven to deal with pain complaints, but the scientific proof and how its mechanism of action works needs to be examined. Post-operative pain from moderate to severe levels is still perceived by more than half of all patients who have undergone surgery, despite receiving treatment as a standard post-operative patient (Ward, Guest, Goodall, & Bantel, 2018; Komann, Weinmann, Schwenkglenks, & Meissner, 2019). Recommendations for post-operative pain management with treatment includes both drugs and non-drugs, as well as treatment-free therapy (Chou et al., 2016) and complementary approaches with affirmation - tapping (Mudatsyir, K, & Sundari, 2012; Wijiyanti, 2010). Post-operative nursing care management with affirmation-tapping has been done through the Spiritual Emotion Freedom Technique (SEFT) method in post-operative patients and it provides good benefits (Mudatsyir et al., 2012; Wijiyanti, 2010). Reciting Qur'anic verses as a prayer has also helped to reduce the pain of post-operative patients (Beiranvand, Noaparast, Eslamizade, & Saeedikia, 2014).

The complementary nursing approach has consistently been in line with the nursing care policy, particularly for managing nursing pain. This is still rarely done due to the limited scientific support regarding the performance and effectiveness of complementary affirmative nursing interventions (Chou et al., 2016; WHO, OECD, 2018). The aim was to compare the mean perception of pain reported by post-operative patients given the affirmation - tapping treatment with another treatment as a complementary nursing intervention. This proves that the performance of the serotonin serum level is different from how it is in other treatments, where the affirmative sentences are used as a prayer. They take verses from the Qur'an and this is still combined with the stimulation of several acupoints simultaneously.

## MATERIALS AND METHODS

This study used a Randomized Post-test Controlled Group design in parallel for all treatment groups. The sample of the study was a portion of post-operative caesarean patients taken through simple random sampling for as many as 40 respondents (Sakpal, 2010). Randomized Assignment was then carried out so then there were ten respondents for each group of affirmation, tapping, affirmation-tapping and the control. The criteria for inclusion in the sample was 1) Muslim patients post-caesarean section who volunteered to participate after obtaining an explanation and 2) they were approached on the first day after surgery, 3) they were aged 18 - 41 years, 4) they had no complications outside of pregnancy and childbirth and 5) they received anti-pain treatment according to hospital standards

The independent variable was the intervention of affirmation-tapping and the dependent variables

were pain perception and serotonin level. The data collection tools were 1) the guidelines of the affirmation - tapping procedure, 2) the McGill - Melzack Pain short-form questionnaire with permission from Prof. Melzack, with the language adjusted accordingly (Katz & Melzack, 2011)(Hargiyanto, 2008) and 3) the equipment used for taking venous blood specimens (Simundic et al., 2017). The serotonin level was analyzed using ELISA kits (Elabscience, 2019), carried out by the Institute of Tropical Disease (ITD) Universitas Airlangga. The ELISA kit used the Competitive-ELISA principle. The micro ELISA plate provided in this kit was pre-coated with ST/5-HT. During the reaction, ST/5-HT in the sample or standard competes with a fixed amount of ST/5-HT on the solid phase supporter for sites on the Biotinylated Detection Ab specific to ST/5-HT. Excess conjugate and unbound sample or standard were washed from the plate, and Avidin conjugated to Horseradish Peroxidase (HRP) was added to each microplate well and incubated. An TMB substrate solution was then added to each well. The enzyme-substrate reaction was terminated by the addition of a stop solution and the color change was measured spectrophotometrically at a wavelength of  $450 \text{ nm} \pm 2 \text{ nm}$ . The concentration of ST/5-HT in the samples was then determined by comparing the OD of the samples to the standard curve (Elabscience, 2019).

All groups got standard treatment, with the affirmation treatment groups getting these plus affirmations for 10 minutes. The tapping group added tapping for 5 minutes while the affirmation group - tapping added affirmations and tapping at the same time for 10 minutes. The control group only received standard treatment four hours after the end of the anesthesia. The distance between the treatments was 8 hours, and they were given four treatments. Following this, 10 minutes after the last treatment, the pain perception data was collected using MPQsf. The venous blood specimen was then taken for the examination of the serotonin levels using the ELISA method.

The data analysis was directed at examining the different effects of serotonin on pain perception due to affirmation - tapping. The serotonin data processing and pain perception of the four groups was performed through simple linear regression with a defined level of significance of 95%. The research protocol obtained an ethical approval certificate from the Surabaya Ethics Hospital Health Research Commission, Number 073/37/KOM.ETIK/2017.

## RESULTS

The characteristics of the participants from all groups have been listed in the following table. The oldest mean age was  $32,1 (\pm 5,8)$  and the youngest was  $29,3 (\pm 6,1)$ . The highest body weight was  $56,5 (\pm 7,8)$ . The highest body height was  $164,5 (\pm 8,8)$  and the lowest was  $159,6 (\pm 4,6)$ . The highest systolic pressure was

Table 1. Characteristic of Respondents (n=40)

Variables	Groups							
	Affirmation (n=10)		Tapping (n=10)		Affirmation-tapping (n=10)		Control (n=10)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age (year)	32.1	5.8	31.1	6.4	31.4	5.1	29.3	6.1
Body weight (kg)	55.7	4.9	54.4	7.9	56.5	7.8	52.9	6.4
Body height (cm)	164.5	8.8	161.6	5.9	159.6	4.6	160.5	4.2
Systolic pressure (mmHg)	126.8	4.7	127.9	4.3	125.9	6.5	125.5	5
Diastolic pressure (mmHg)	79.6	1.3	78.6	5.1	81.5	6.9	84	7
Pulse rate	88.2	0.6	88.2	3.8	84.6	3.8	87.2	2.7
Respiration rate	21	3	20.8	2.5	20.4	2.1	21.2	2.1

\*SD: Standard Deviation

Table 2. Serotonin levels (ng / mL) and pain perception per group (n=40)

Variables	Groups							
	Affirmation (n=10)		Tapping (n=10)		Affirmation-tapping (n=10)		Control (n=10)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Serotonin	0.50	0.02	0.37	0.06	0.69	0.13	0.19	0.03
Pain perception	3.93	0.59	4.79	0.6	3.2	0.83	4.92	0.52

\*SD: Standard Deviation

127,9 ( $\pm$  4,3) and the lowest was 125,5 ( $\pm$  5,0). The highest diastolic pressure was 84,0 ( $\pm$  7,0) and the lowest was 78,6 ( $\pm$  5,1). The highest pulse frequency was 88.2 ( $\pm$  0,6) and the lowest was 84,6 ( $\pm$  3,8). The highest respiratory rate was 21,2 ( $\pm$  2,1) and the lowest was 20,4 ( $\pm$  2,1). The data on age, weight, height, systolic and diastolic pressure, pulse and breathing is normally distributed ( $-2 <$ Skewness Ratio  $<2$ ), so comparative analysis can be performed between the groups in Table 1.

From Table 2, it can be seen that the highest serotonin mean was found in the affirmation-tapping treatment group ( $0,69 \pm 0,13$ ) with the lowest pain perception ( $3,20 \pm 0,83$ ). In order to test the effect of treatment on pain perception related to the serotonin serum levels, simple linear regression analysis was performed. The normality regression requirements are that there is normally distributed residual data. The normality test results obtained an unstandardized residual Sig = 0,072 ( $> 0,05$ ), so it can be concluded that the distribution is normal. The simple linear regression analysis results obtained a Sig value = 0.00 ( $<0.05$ ). This means that there is an influence between serotonin and pain perception as a result of affirmation - tapping.

## DISCUSSION

The data processing proves that affirmation - tapping treatment can help the patients to reduce pain perception after caesarean section surgery. The clinical trial studies conducted in the hospital prove that affirmative-tapping as a complementary approach has been able to reduce the pain of traumatized patients. The most complementary approach was to utilize integrative medicine for the postoperative care of patients (Moon, Shin, Shin, Kwon, & Lee, 2017). Research on affirmative-tapping approaches has also helped to reduce dysmenorrhoea

pain in adolescents (Lenni Sastra, Jasmarizal, 2016). Research conducted by Wijiyanti has also proven that the affirmation-tapping approach can reduce pain after caesarean section surgery (Wijiyanti, 2010). The affirmation-tapping approach has also been proven to reduce the pain suffering of cancer patients (Taber, Klein, Ferrer, Kent, & Harris, 2016), control fibromyalgia pain complaints (Benor, Rossiter-Thornton, & Toussaint, 2017) and control the pain and depression complaints of war veterans (Beiranvand, Noparast, Eslamizade, & Saedikia, 2014; Church, 2014).

The biological perception of pain is an accumulation of stimulus and response performance results that are controlled consciously or outside of the consciousness by the brain, especially the forebrain and the central nervous system including the spinal cord (Bushnell, Ceko, & Low, 2013; Thakur, 2015). By utilizing the descendent and ascendant mechanisms of action, the journey of the stimulus and pain response can be controlled using neurotransmitter media via the forebrain and amygdaloid (Bourbia, 2015; Thompson & Neugebauer, 2017).

The empowerment of the forebrain by affirmation can eliminate the default - inhibition (inhibitory functional work as a necessity) from the amygdaloid (Bourbia, 2015) so as to activate the descendent pathway that blocks pain signals that lead to the dorsal horn spinal cord. This means that pain transduction through the ascendant pathways to the central nerves and brain can be prevented (Neugebauer, 2015). Praying by focusing one's attention and thoughts on God followed by acupoint stimulation through affirmation-taping will increase the level of serotonin (Liu, Tan, Molassiotis, Suen, & Shi, 2015; Ménard, Pfau, Hodes, & Russo, 2017). This will modulate their pain perception (Martin et al., 2017).

Affirmations using prayers that are uttered with sincerity and confidence can double the empowerment in the forebrain and amygdaloid, boosting performance so then the function of pain control becomes better and more effective (Beiranvand, Noparast, et al., 2014; Fajarudin, 2006; H.M. Amin Syukur; Fathimah Usma, 2012; Neugebauer, 2015). Tapping as a form of acupoint stimulation can inhibit the transduction of pain from various areas of the body to the center, thereby the pain stimulation from surgical wounds can be inhibited. Consequently, the participants do not suffer from pain (Liu et al., 2015).

Affirmations - tapping increases serotonin levels, thereby it is able to strengthen the performance of descendent pain inhibition, thus inhibiting the transduction of pain from the peripheral to the center, thus overcoming the pain complaint (Emami, 2018). The limitation of this study is that no screening for participants with diabetes mellitus was performed.

Affirmations done using prayers from Al-Fatihah followed by tapping on several acupoints can reduce the complaint of post-surgical pain. Affirmation-tapping interventions can be continued and recommended by nurses who have been trained and licensed to do so.

## CONCLUSION

Participant pain complaints were lowest in the affirmation-tapping group with the highest serotonin levels. This is significantly different from the other groups. Affirmations - tapping has been proven to have a therapeutic effect in the context of overcoming post-caesarean section pain complaints. The novelty of the study is the affirmation-tapping performance when dealing with pain complaints associated with increased serotonin. Affirmations - tapping with Al-Fatihah prayers can thus be recommended to overcome pain complaints as a complementary approach to nursing.

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