

# Effects of Spiritual Care Cupping Reduce Pain in Patients with Knee Joint Pain

Zahid Fikri<sup>1\*</sup>, Suhartono Taat Putra<sup>2</sup> and Joni Haryanto<sup>3</sup>

<sup>1</sup>Department of Nursing, Faculty of Health Science, University of Muhammadiyah Malang, Indonesia  
Jl. Bendungan Sutami 188A, Kota Malang, Jawa Timur, 65145

University of Muhammadiyah Malang Jalan Bendungan Sutami 188A Malang

<sup>2,3</sup>Faculty of Medicine, Airlangga University, Indonesia

Jalan Airlangga Nomor 4 – 6 Gubeng, Kota Surabaya, Jawa Timur, 60286

\*Corresponding author: zahid@umm.ac.id

---

## ABSTRACT

**Backgrounds:** Joint pain is a disorder that can lead to disability and decreased performance. Spiritual cupping care is a combination of prayer and cupping that can increase endorphins and reduce pain in patients with knee joint pain. **Objective:** The aim of the study was to explain the effect of spiritual cupping care therapy on the reduction of knee joint pain. **Method:** This research is an experimental research with non-randomized control group pretest posttest design method. The number of samples of 7 respondents selected based on sample criteria. Dependent variables in the study were endorphins and pain scale; the independent variable is spiritual cupping care. Instruments in this study were the observation sheet (numerical rating scale and endorphin hormone examination with elisa) and SOP spiritual cupping care. Data analysis was done descriptively and test of Wilcoxon, Mann-Whitney, and Kruskal Wallis. **Result:** Spiritual cupping care caused changes in pain scale and endorphin levels. The Kruskal Wallis test was performed to determine the spiritual effect of cupping care on the scale of pain and endorphins compared with prayer group and deep breathing groups. Spiritual cupping care provides a decreasing effect of pain scale and increased endorphins. **Conclusion:** Spiritual cupping care intervention can reduce the scale of pain and increase endorphins. Further research needs to be done by involving religious leaders and relaxation experts in prayer group and deep breathing groups that are expected to help respondents to obtain optimal results.

**Keywords:** Spiritual Cupping Care, pain scale, praying, deep breath relaxation technique, endorphin

---

## INTRODUCTION

The patient's joint pain complaints disappear after getting the cupping intervention. Joint pain can cause discomforts and disabilities that interfere with daily activities. Joint pain is often associated with age and in general concerning the knees, joints in the hands, hips and spine (Nevitt, Felson, & Laster, 2011). Non-pharmacological measures (drinking herbs and massage) are numerous for pre-elderly and elderly people with joint pain including spiritual cupping care. Spiritual cupping care is an intervention that combines spiritual care and cupping therapy. Until now the complaints of joint pain that disappear because of spiritual cupping care cannot be explained.

Pain sufferers worldwide have reached 355 million, meaning that 1 in 6 people in the world suffer from joint pain. It is estimated that this figure will continue to increase until 2025 with an indication that more than 25% will experience paralysis. The World Health Organization (WHO) reports that 20% of the world's population is suffering from joint pain. Where 5-10% is those aged 5-20 years and 20% of those aged 55 years. Based on the latest

research results from Zeng et al (2008), the prevalence of joint pain in Indonesia reached 23.6% to 31.3%. This figure indicates that joint pain is enough to disrupt the activities of the people of Indonesia. The incidence of joint pain in Sekapuk Public Health Center in March 2014 was 23 males and 61 females between the ages of 45-54 years. This figure shows that the pain in the knee joint is enough to interfere with the activities of the people of Indonesia.

Decreased mobilization ability due to pain in general will affect the activities of daily life. A study conducted by Michaelsen (2009) proving that wet-cupping interventions can reduce pain and reduce symptoms of Carpal Tunnel Syndrome disease. Spiritual cupping care that combines wet scratching and prayer interventions can reduce pain because prayer can create a positive perception that can stimulate the release of endorphins. Based on the description of the research above, then the spiritual cupping care can be an alternative solution (intervention) to overcome the pain complaints. The author intends to conduct research on the influence of spiritual cupping care in overcoming knee joint pain complaints.

## METHOD

This is an experimental non-randomize pre posttest control group design with a total population of 84 people suffering knee joint pain. Sampling method used a purposive sampling technique. The sample consisted divided into three groups namely the spiritual cupping care group, the prayer group, and the deep breathing relaxation group, each group consisting of seven respondents. The ethical research test was conducted at the Ethics Committee of Airlangga University. Data were analyzed using Statistical Package for the Social Sciences (SPSS Version 16.0) for Windows. Data analysis used in this research is Wilcoxon signed rank test (to know difference between pre and post), Kruskal Wallis and Mann Whitney to know the influence of independent variable with dependent variable with significance level  $\alpha < 0,05$ .

## RESULT AND DISCUSSION

A total of 21 participants were included in the analysis. The most of the participants (66.7%) were female. The median age of the participants was 46 years. The majority of age of the participants (57.1%) ranged from 41 to 50 years old. The majority of education of the participants (80.9%) is high school. Table 2 shows that the results of statistical tests using the Wilcoxon sign rank test, the intervention group p value of 0.016 ( $p < 0.05$ ), means that there are differences in the pain scale pre and post after cupping spiritual care given. Prayer group p value: 0.083 ( $p > 0.05$ ), means there is no difference. Deep breathing relaxation group in the p value: 0.102 ( $p > 0.05$ ), means there is no difference.

Statistical test results using the Kruskal Wallis test between the intervention group, prayer group, and deep breathing relaxation group in the p value: 0.001 ( $p < 0.05$ ), meaning there is a significant pain reduction after spiritual cupping care given (Table 3). The results statistically using Mann Whitney test between the intervention group with the prayer group p value: 0.001 ( $p < 0.05$ ), means that there are significant differences in pain after being given spiritual cupping care (Table 4). The results statistically using Mann Whitney test between the intervention group in the breath p value: 0.001 ( $P < 0.05$ ) means that there is a significant difference in pain after given spiritual cupping care intervention (Table 5). The results statistically using Mann Whitney test between prayer group and deep breathing group p value: 1.000 ( $p > 0.05$ ) means there is no difference in pain (Table 6). Based on data it shows that the scale of pain in the intervention group decreased. Before given cupping spiritual care, all the pain scale over a scale of 5, after the spiritual cupping

care done, respondents' pain scale decreased to less than the scale of 4. This is not seen in the prayer group and deep breathing group, in the prayer group and deep breathing group did not decrease pain scale.

**Table 1 Demographic characteristics of participant**

<b>Demographic characteristic</b>	<b>N</b>	<b>%</b>
<b>Age (years old)</b>		
Intervention group		
- 30-40	1	14,27
- 41-50	5	71,43
- 51-60	1	14,27
Prayer group		
- 30-40	3	57,14
- 41-50	4	42,86
- 51-60	0	0
Deep breathing relaxation group		
- 30-40	2	28,57
- 41-50	3	42,86
- 51-60	2	28,57
Median = 46 years old		
<b>Gender</b>		
Intervention group		
- Male	2	28,57
- Female	5	71,43
Prayer group		
- Male	3	42,86
- Female	4	57,14
Deep breathing relaxation group		
- Male	2	28,57
- Female	5	71,43
<b>Education</b>		
Intervention group		
- High school	6	85,72
- Bachelor	1	14,29
Prayer group		
- High school	5	71,43
- Bachelor	2	28,57
Deep breathing relaxation group		
- High school	6	85,72
- Bachelor	1	14,29

**Table 2 Distribution of respondents pain scale before (pre-test) and after (posttest) in the intervention group, prayer group, and deep breathing relaxation group**

	Pre		Post		<i>P</i> <sub>Wilcoxon</sub>
	Med	Min-Max	Med	Min-Max	
Intervention group	6.000	6-7	2.000	1-3	0.016
Prayer group	6.000	6-7	6.000	5-7	0.083
Deep breathing relaxation group	7.000	6-7	6.000	5-7	0.102

**Table 3 Distribution of respondents pain scale before (pre-test) and after (post- test) in the intervention group, prayer group, and deep breathing relaxation group**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention	6.4286	0.53452	1.8571	0.69007
Prayer	6.4286	0.53452	6.000	0.57735
Deep breathing	6.5714	0.53452	6.000	0.57735
<i>P</i> <sub>Kruskal Wallis</sub>	0.834		0.001	

**Table 4 Distribution of respondents pain scale after (post-test) in the intervention group and prayer group**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention group	6.4286	0.53452	1.8571	0.69007
Prayer group	6.4286	0.53452	6.000	0.57735
<i>P</i> <sub>Mann Whitney</sub>	1.000		0.001	

**Table 5 Distribution of respondents pain scale after (post-test) in the intervention group and the deep breathing relaxation group**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention group	6.4286	0.53452	1.8571	0.69007
Deep breathing relaxation group	6.5714	0.53452	6.000	0.57735
<i>P</i> <sub>Mann Whitney</sub>	0.606		0.001	

**Table 6 Distribution of respondents pain scale after (post-test) in group prayer and deep breathing group**

	Pre		Post	
	Mean	±SD	Mean	±SD
Prayer group	6.4286	0.53452	6.000	0.57735
Deep breathing relaxation group	6.5714	0.53452	6.000	0.57735
<i>P</i> <sub>Mann Whitney</sub>	0.606		1.000	

The intervention group interventions used to reduce pain is by spiritual cupping care. Spiritual cupping care is done by starting to read the prayer then do cupping. Prayer will form a positive perception that affects the amygdala and anterior pituitary to secrete POMC which provide a relaxing effect and stimulates endorphins which serves to lower the pain. Cupping therapy because an inflammatory reaction that resulted in the expenditure of histamine, causing vasodilatation that causes relaxation that stimulates endorphins. Endorphins including endogenous opiates that work by binding to opiate receptors.

Receptor types consist of: receptor mu, kappa and delta. After binding to opioid receptors in the limbic system, the middle brain, and spinal cord, opioids reduce pain by preventing a variety of pain-producing neurotransmitters, so that reduced pain scale. Kim et al (2011) reported that the mu opioid receptors and delta opioid receptors bind strongly to the endorphins that come from POMC [9]. Endorphins and enkephalin have an important role in endogenous pain reduction [10]. Opioid receptors can activate a cascade of phospholipase C (PLC), modify the Ca<sup>2+</sup> canal, and potassium which causes a decrease in the ability of nerve cells to respond to stimuli and inhibit the pain neurotransmitter expenditure (Khan, Jahangir & Urooj, 2013). Barriers pain neurotransmitter causes a decrease in pain.

Decreased pain does not occur in a prayer group. Prayer offered respondents have not been able to form an optimal positive perception caused by some respondents lack confidence in the spoken prayers. Feeling less confident of skeptical about the prayer offered prayers lead to a positive perception of reduced processed in the amygdale causes POMC not out and endorphins are not secreted thus decreasing pain scale is not optimal. Pain reduction also does not occur on deep breathing relaxation group. Relaxations breathe sore lower effective when combined with lavender aromatherapy (Khan, Jahangir & Urooj, 2013). This study uses a deep breath without combination with aromatherapy so that the results be less than optimal.

Table 7 shows after Wilcoxon Sign Rank Test in the intervention group p value: 0.018 (p < 0.05), meaning there is a difference in the intervention group after cupping care given spiritual intervention. In the prayer group p value: 0.400 (p > 0.05), means there is no difference. In group breathe p value: 0.730 (p > 0.05), means there is no difference. Table 8 shows after Kruskal Wallis test between the intervention group, prayer group, and deep breathing relaxation group in the p value: 0.001 (p < 0.05), means there is a significant increase in endorphins after cupping care given spiritual intervention.

**Table 7 Distribution of respondents Prior endorphin levels (pre-test) and after (Post-test) Given Spiritual Cupping Care Intervention (n = 7).**

	Pre		Post		<i>P<sub>Wilcoxon</sub></i>
	Med	Min-Max	Med	Min-Max	
Intervention group	0.16	0.13-3.11	0.46	0.28-3.76	0.018
Prayer group	0.26	0.09-3.74	0.21	0.10-3.14	0.400
Deep breathing relaxation group	0.21	0.13-0.36	0.23	0.12-0.31	0.730

**Table 8 Distribution of respondents endorphins before (pre-test) and after (post-test) in the intervention group, prayer group, and deep breathing relaxation group (n = 7)**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention group	0.9529	1.34279	1.3029	1.41706
Prayer group	0.8443	1.33464	0.6157	1.11569
Deep breathing relaxation group	0.2100	0.07439	0.2086	0.06149
<i>P<sub>Kruskal Wallis</sub></i>	0.939		0.013	

**Table 9 Distribution of endorphins respondents before (pre-test) and after (post-test) in the intervention group and prayer group**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention group	0.9529	1.34279	1.3029	1.41706
Prayer group	0.8443	1.33464	0.6157	1.11569
<i>P<sub>Mann Whitney</sub></i>	0.939		0.047	

**Table 10 Distribution of respondents endorphin levels before (pre-test) and after (post-test) in the intervention group and the group of breath**

	Pre		Post	
	Mean	±SD	Mean	±SD
Intervention group	0.9529	1.34279	1.3029	1.41706
Deep breathing relaxation group	0.2100	0.07439	0.2086	0.06149
<i>P<sub>Mann Whitney</sub></i>	0.939		0.003	

**Table 11 Distribution of respondents endorphin levels before (pre-test) and after (post-test) in the group and group prayer**

	Pre		Post	
	Mean	±SD	Mean	±SD
Prayer group	0.8443	1.33464	0.6157	1.11569
Deep breathing relaxation group	0.2100	0.07439	0.2086	0.06149
<i>P<sub>Mann Whitney</sub></i>	0.608		1.000	

Table 9 shows after Mann Whitney between the intervention group with the prayer group p value: 0.047 ( $p < 0.05$ ), meaning there is a difference. Table 10 shows the test after Mann Whitney between the intervention group in the breath p value: 0.003 ( $p < 0.05$ ), meaning there is a difference. Table 11 shows after Mann Whitney between group prayer with a deep breathing relaxation group p value: 1.000 ( $p > 0.05$ ), means there is no difference. The results showed that endorphins in the intervention group spiritual cupping care (a combination of prayer with cupping) have increased. It is not seen in the prayer group and deep breathing group, in the prayer group and deep breathing group there are no increase endorphin levels.

Endorphin hormone is a chemical compound that makes people feels happy. Endorphins are produced by the pituitary gland located in the lower part of the brain. Some of the benefits of endorphins is, regulate the production of growth hormone and sex, controlling pain and persistent pain, controlling the feelings of stress and boost the immune system (Khan, Jahangir & Urooj, 2013). Increased endorphins in the intervention group increased due spiritual care cupping combines prayer with cupping therapy. Reading prayers were able to change the perception into a positive (Mihail, 2010). A positive perception received by the amygdale, hypothalamus and anterior pituitary POMC spending will stimulate the function causes relaxation. Relaxation effect obtained as a result of prayer reinforced by cupping therapy. Cupping begins with a suction cupping the skin at the point of continuing to provide injury and then do the vacuuming back (Mickelsen, 2009). Strain the skin caused by a bruise suctioning process causes keratinocyte cell mechanoreceptors participate stretched triggering integrin (Lauche, et al, 2011). Stretching on vascular smooth

muscle cells to stimulate heat shock protein 70 (HSP 70). Heat shock protein extracellular affect innate and adaptive immune responses and interact with the toll like receptor 4 (TLR4) (Ullah, Younis, & Wali, 2007; Khan, Jahangir & Urooj, 2013). Damage caused by injury resulted in the release excitatory neurotransmitters such as prostaglandins, bradykinin, potassium, histamine, and substance P. The substance is sensitive to pain are all around pain fibers (fibers A, C fibers) in the extracellular fluid to spread the message of pain and cause inflammation (Lauche, et al, 2011).

Inflammations also trigger interleukin (IL), tumor necrosis factor (TNF) and neurotropic particularly nerve growth factor (NGF) (Ullah, Younis, & Wali, 2007). The incision on the cupping is one stressor that causes changes in humoral mediated by the hypothalamus pituitary adrenal (HPA). Activation of this pathway by the circuit the stress response resulting in the release of corticotrophin releasing hormone (CRH). CRH stimulates transcription CRHR1 binds to the pro- opiomelanocortin gene (POMC). POMC was split into two fragments, namely adrenocorticotrophic hormone (ACTH) and  $\beta$ -endorphin 103 (Lauche, et al, 2011). Research conducted Meer (1996) mentions that in mice induced by IL-1 $\beta$ , TNF- $\alpha$ , and IL-6 stimulates CRH, reported that IL-1 $\beta$  CRH stimulates more potent than IL-6 and TNF- $\alpha$ . Research by Karalis (2004) reported that induction of NF $\kappa$ B at corticotrophs cells trigger the pituitary POMC gene through CRH. Initial studies conducted by researchers proved that spiritual care cupping stimulates endorphins immediately after the treatment and the highest level of endorphins in 1 hour, 6 hours, and 12 hours after treatment. Cupping cause an inflammatory reaction that triggers CRH issued POMC. POMC is broken down into ACTH and  $\beta$ -endorphin. The result showed that spiritual care cupping stimulates endorphins (Farhadi, et al, 2009).

Increased endorphins in the prayer group did not happen due to under-appreciate the respondent's prayer. Some of the factors that lead to an acceptable prayer is for solemnity (focus), surrender, sincerity and gratitude (Lauche, et al, 2011). The results of the study entitled "Reduction of Drug Addiction on Abusers Performing Dzikir (prayer) in Ponpes Inabah Surabaya" mentions that dzikir (prayer) done consistently for 40 and 56 days can increase endorphin levels. In this study, respondents did not used to saying a prayer in case of pain, so that consistency of prayer becomes less which causes positive perception was not formed accepted by the amygdala, hypothalamus and anterior pituitary POMC not produce that serves to stimulate endorphin secretion (Doosey, 2008).

Increased endorphins in the deep breathing relaxation group is also not the case. Deep breathing relaxation can be optimized when done in focus, concentration and combined with aromatherapy. Deep breathing relaxation is a technique that has never been done by respondent to reduce knee joint pain. Unfamiliarity of respondents in doing deep breathing relaxation makes respondents less focus so that the result of deep breathing relaxation cannot lose a pain scale that is characterized by increased endorphin levels are not (Ahmed, Fawaz, & Hssanien, 2010).

## CONCLUSION

Once the results are known and described in detail, it can be concluded that: spiritual cupping care intervention is one solution in reducing pain. Spiritual care is a combination of cupping and reading prayers. The prayer will affect the patient's perception into a positive. Positive perception will affect the amygdala and the anterior pituitary, causing the body to produce POMC which stimulates endorphins or cupping suction cupping points at the point for 3-4 minutes. Once the cup is removed, the injury done in same area using a sterile surgical blade. Inflammatory reaction occurs causing histamine expenditure and vasodilatation in blood vessels which provide a relaxing effect and

stimulates the POMC expenditure which triggers the endorphins. The endorphins release due to spiritual cupping care will cause a decrease in pain in patients with knee joint pain. So spiritual care cupping able to increase endorphins that cause a sense of comfort that reduces pain in patients with knee joint pain. This study still needs further research by involving religious leaders to reinforce the intervention effect of prayer, deep breathing and relaxation experts to combines deep breathing relaxation techniques with aromatherapy to further optimize the results, and the need to compare spiritual cupping care with prayer and cupping care alone.

## REFERENCES

- Ahmed, AF, Fawaz, SM, & Hssanien, MMR. (2010). Effect of Cupping Therapy in Treating Chronic Headache and Chronic Back Pain at Al Heijamah Clinic HMC, *World Family Medicine Journal: Incorporating the Middle East Journal of Family Medicine*, 8(3): 30-36.
- Doosey, BM. (2008). Theory of Integral Nursing. *Advances in Nursing Science*, 31(1), pp. E52–E73.
- Lauche, R, Cramer, Choi, K, Rampp, T, Saha, FH, Dobos, GJ, & Musial, F. (2011). The influence of a series of five dry cupping treatments on pain and mechanical thresholds in patients with chronic non-specific neck pain - a randomized controlled pilot study, *BMC Complementary and Alternative Medicine*, 11(63).
- Farhadi, K, Schewel, DC, Saeb, M, & Choubsaz, M. (2009). The effectiveness of wet-cupping for nonspecific low back pain in Iran. *Complementary Therapies in Medicine*, p.17: 9–15.
- Khan, AA, Jahangir, U & Urooj, S. (2013). Management of knee osteoarthritis with cupping therapy, *Journal of Advanced Pharmaceutical Technology & Research*, 4(4), 217-223.
- Kim, JI, Kim, T, Lee, MS, Kang, JW, Kim, KH, Kang, K, Kim, A, Shin, MK, Jung, S, & Choi, S. (2011). Evaluation of wet-cupping therapy for persistent non-specific low back pain: a randomized, waiting-list controlled, open-label, parallel-group pilot trial, *BioMed Central*, 12(146).
- Mickelsen, A. (2009). Effect of Traditional Cupping Therapy in Patients with Carpal Tunnel Syndrome: A Randomize Controlled Trial, *The Journal of Pain*.
- Mihail, B. (2010). *Bio magnetic Women's Suction Cupping*. <http://www.itmonline.org/arts/cupping.htm>.
- Nevitt, MC, Felson, DT., & Laster, G. (2011). *The Osteoarthritis Initiative .OAI Protocol*. <http://oai.epiucsf.org/datarelease/docs/StudyDesignProtocol.pdf>.
- Reyes-Gibby C, T. (2008). Epidemiology of chronic pain: classical to molecular approaches to understanding the epidemiology of pain. In (Wilson PR, Watson PJ, Haythornthwaite JA and Jensen TS, eds). *Chronic Pa.*, London: Hodder Arnold
- Teut, M, Kaiser, S, Ortiz, M, Roll, S, Binting, S, Willich, SN, & Brinkhaus, B. (2012). Pulsatile dry cupping in patients with osteoarthritis of the knee – a randomized controlled exploratory trial, *BMC Complementary and Alternative Medicine*, 12 (184).
- Ullah, K, Younis, A & Wali, M. (2007). An investigation into the effect of Cupping Therapy as a treatment for Anterior Knee Pain and its potential role in Health Promotion, *Journal of Alternative Medicine*. 4(1), DOI: 10.5580/796.
- Zeng QY, Huang S, Xiao Z, Chen S, Liu X, & Zhou X. (2008): Rheumatic Disease in China. *Chin J Intern Med (Chinese)*.