Traditional Chinese Music Therapy as Adjunct Post-operative Pain Management among Chinese Women after Cesarean Delivery

Xueying Han[1], Paul Froilan U. Garma[2]

[1] Philippine Women's University, Manila, Philippines

[2] Far Eastern University, Manila, Philippines

Abstract: Purpose — This study aimed to determine the effects of traditional Chinese music therapy as adjunct post-operative pain management among Chinese women after cesarean delivery. Background — Post-operative pain is common in women after cesarean delivery and has a number of adverse effects. Chinese traditional music therapy as a non-invasive, adjunct therapy of pain has been applied in a variety of gynecological diseases, but the effect on post-operative pain following cesarean delivery needs to be established. Method — A quasi-experimental nonequivalent control group design pre-test-posttest design was used to carry out the study. Sixty-six participants who met the eligibility criteria were purposively selected and the first thirty-three participants were assigned into experiment group, and the other thirty-three participants were conveniently assigned into the control group. Numeric Pain Rating Scale (NPRS) was used to measure the post-operative pain on several time periods (at baseline for pre-test, and subsequently at 4 hours, 8 hours, 16 hours, 24 hours for the post-test). Wilcoxon Sign Test and Mann Whitney Test were used to determine significant difference between and within groups. Results — At baseline (pre-intervention), there is no significant difference between the post-operative pain scores between the control group (M=6.67, SD=0.65) and the experiment group (M= 6.70, SD=0.65), p-value is 0.879. However, significant differences in the post-operative pain scores within and between the control and experimental groups were observed after 4 hours (T1), 8 hours (T2), 16 hours (T3) and 24 hours (T4) as compared to baseline (T0) after cesarean delivery (p-value < 0.0005). Conclusion — Traditional Chinese music therapy as adjunct therapy significantly reduces post-operative pain among Chinese women after cesarean delivery.

Keywords: traditional Chinese music therapy, post-operative pain management, cesarean delivery

1. Introduction

Post-operative pain is a common feature among women following cesarean delivery. It is a distressing sensation that causes discomforts, nausea, vomiting, delayed bowel motility and healing of surgical incision and muscle spasms[1]. Physiologically, post-operative pain causes sympathetic nerve excitement, thereby inhibiting prolactin secretion, and breast milk secretion is decreased, it leads to profound psychological, physiological and physical discomforts. Choosing an appropriate nursing plan for post-operative pain relief reduces post-operative complications[2].

Traditional Chinese music therapy is an adjunct therapy that is based on the ancient theory of Yin and Yang. The music consists of five tones namely gong, shang, jiao, zhi and yu, which correspond to the spleen, lung, liver, heart and kidney. These five tones should regulate body processes to achieve harmony and healing. Music therapy has been applied in many clinical studies to relieve pain[3]. Traditional Chinese music was believed to stimulate the pituitary gland to release endorphins which relieve pain and distract the attention of the maternal pain[4].

Because of the intimate connection of health and Chinese alternative and traditional medicine among Chinese obstetric population, traditional Chinese music therapy has a more extensive nursing application in obstetrics and gynecology[4]. The application of traditional Chinese music to pain management after cesarean delivery has not been fully explored in literature, and the evidence of its effectiveness is insufficient. Thus, this study aimed to determine the effects of traditional Chinese music therapy on post-operative pain of Chinese women after cesarean delivery and contributes to the growing evidence of effectiveness of Chinese alternative and complementary interventions.

2. Samples

The researcher screened 72 participants, and 66 among them met the eligibility criteria and were admitted in OB ward from a Hospital of Huaiyuan, Anhi Province. The first 33 participants who were admitted in the hospital who met the eligibility criteria were assigned in the experiment group, and the other 33 participants were conveniently assigned in the control group. The

eligibility criteria of participants were as follows: (1) woman aged 20-40 years old; (2) a term pregnancy; (3) would be undergoing an emergency or emergency cesarean delivery; (4) had no gross visual or hearing impairments; (5) inducted with spinal anesthesia; and (6) willingness to listen to traditional Chinese music. A total of 66 participants was the proposed sample size to reach 95% power and a 0.8 effect size with an alpha value of 0.05. All participants completed the intervention.

3. Procedures

The researcher explains the purpose of the study and describes the data collection procedure to the subjects. Informed consent was obtained. After the initial recruitment process was completed, subjects were asked to complete a basic demographic information form. The study received ethical clearance under the hospital's policy.

After measuring pretest post-operative pain, participants in the experimental group received traditional Chinese music therapy. The researcher implemented the intervention. Participants used MUSIC PLAYER 3 to play traditional songs entitled "Spring", "Clouds chasing the moon", "Moon high". Participants listened to the three songs that are played on a loop, the volume was set about at 20-60 db and the duration lasted for 30 minutes. All the three music songs adopted the "gong" tone in the five tones of traditional Chinese music and were light music performed by Chinese classical instruments. The melody of the music is slow and peaceful, which has the style of ancient Chinese music. During the process of intervention, the participants might adjust according to the needs when she felt uncomfortable. The intervention was repeated again at 8 hours, 16 hours and 24 hours after cesarean delivery. The control group received the routine post-operative care for woman after cesarean delivery as per hospital policy.

4. Measures

Numeric Pain Rating Scale (NPRS) was adopted to measure post-operative pain. NPRS is a horizontal ruler with a length of 10cm, and the two ends are marked with 0 and 10 respectively. 0 means no pain and 10 means pain as bad as you can imagine, 1-3 means mild pain, 4-6 means moderate pain, 7-10 means severe pain[5]. The participants chose the number 0-10 to describe the pain intensity. NPRS is simple and easy to understand, with high response rate and good operability[6]. It is widely used in clinical practice and has good validity. NPRS scale was used to measure pain 4 hours after cesarean section before receiving nursing care in both groups. After routine nursing was used in the control group, pain was measured 4, 8, 16 and 24 hours after routine nursing and traditional Chinese music therapy in the experimental group by the researcher and three assistants respectively.

Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 21 software. Data sets were compared for completeness, inconsistency and accuracy. If discrepancies were identified, data entries were compared with raw data.

5. Results

It can be inferred from table 1 that pain scores in the experimental group after 4 hours, after 8hours, after 16 hours and after 24 hours are significantly lower than that of the control group. Being homogenous at pre-test, it can be implied that traditional Chinese music therapy in the experimental group as an adjunct intervention is effective for pain relief. As shown in Figure 1, post-operative pain score in the group and experimental group decreases over time with the pain report in the experimental group significantly lower than the control group.

Table 1. Differences in the Post-test Post-Operative Pain at pretest (T0), 4 hours (T1), 8 hours (T2), 16 hours (T3) and 24 hours (T4) between the Control Group and Experimental Group

Time	Mean±SD	Computed Mann-Whitney	p-value
Pretest (T0)			
Control	6.67±0.65	534	0.879
Experimental	6.70±0.68		
4 hrs (T1)			
Control	6.39±0.65	217.5	p<0.0005
Experimental	5.45±0.79		
8 hrs (T2)			
Control	5.51±0.51	168	p<0.0005
Experimental	4.55±0.67		
16 hrs (T3)			
Control	4.72±0.63	117	p<0.0005
Experimental	3.52±0.62		
24 hrs (T4)			
Control	3.88±0.60	78.5	p<0.0005
Experimental	2.52±0.57		

Note: p-value ≤0.05 – significant, p-value >0.05 – not significant
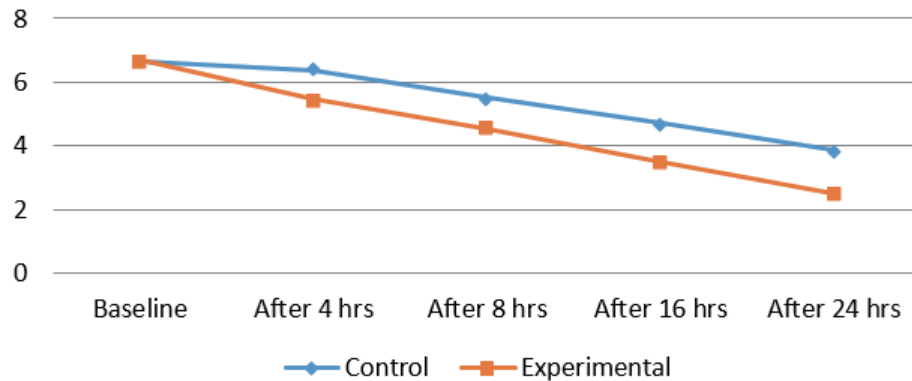
Pain Scores

Figure 1. Trend of the mean pain scores in the control group and the experimental group over time periods

6. Discussion

With the growing attention on postpartum recovery, relieving pain of cesarean delivery becomes a focus in maternal and child health nursing interventions. Traditional Chinese music therapy is based on the theory of music therapy and has the characteristics of traditional Chinese medicine (TCM) treatment. The three songs of light music used in this study belong to the traditional Chinese music with the "gong" tone among the five elements, the tone of music has the effect of regulating qi and blood. Cesarean delivery surgical wound in the abdomen is believed to hinder the flow of qi and blood up and down the body. The "gong" sound can promote the stability of the whole body qi, corresponding to the "spleen" in the human body, the spleen is the source of blood and qi biochemistry. Listening to "gong" tone can replenish qi, can be used for the treatment of qi and blood deficiency, to reduce pain[7].

In a similar study on the effects of music therapy combined with family support on pain during cesarean delivery, results showed that Visual Analogue Scale pain score in the experimental group was significantly lower than that in the control group during cesarean section (P<0.05)[8].

According to the comfort theory of this study, comfort includes four aspects: physical, psychological and spiritual comfort, social and cultural comfort and environmental comfort. In traditional Chinese music, the tone of "gong" traditional Chinese music therapy to regulate qi, blood and Yin and Yang, both of which can reduce physical pain and promote physical comfort[9]. At the same time, routine hospital care can also promote the comfort of the environment. The traditional Chinese music therapy regulates the participants' emotions and brings them psychological and socio-cultural comfort. Pain as a subjective feeling, Chinese traditional music therapy and drug therapy can effectively relieve the pain of participants in the experimental group by satisfying the four elements of comfort. From the perspective of resonance theory, studies found out that under the action of the cerebral cortex, all cells in the body make tiny vibrations according to a certain frequency. In music therapy, some of the vibration of music affects the body, and the two resonate. This resonance as a mediator, regulating the body's mood, heart rate, breathing and blood pressure, and stimulating benign changes in the neuroendocrine system that reduce pain[10].

7. Conclusion

This study offered evidence on the effectiveness of traditional Chinese music therapy as adjunct post-operative pain management after cesarean delivery. It may encourage more Chinese hospitals to promote non-invasive treatment and traditional Chinese medicine care. Nursing management can use the findings to improve standards and procedures of care for women with pain after cesarean delivery.

References

[1] Elvir-Lazo, O. L., White, P. F., Yumul, R., & Cruz Eng, H. (2020). Management strategies for the treatment and prevention of postoperative/postdischarge nausea and vomiting: an updated review. *F1000Research*, 9, 983. https://doi.

org/10.12688/f1000research.21832.1

[2] Bollag, L., & Nelson, G. (2020). Enhanced Recovery After Cesarean (ERAC) – beyond the pain scores. *International Journal of Obstetric Anesthesia*, 43, 36–38. https://doi.org/10.1016/j.ijoa.2020.05.006

[3] Martin-Saavedra, J. S., Vergara-Mendez, L. D., Pradilla, I., Vélez-van-Meerbeke, A., & Talero-Gutiérrez, C. (2018). Standardizing music characteristics for the management of pain: A systematic review and meta-analysis of clinical trials. *Complementary Therapies in Medicine*, 41, 81–89. https://doi.org/10.1016/j.ctim.2018.07.008

[4] Zhu, T., & He, L. (2020). Evaluation of the physiological response and automatic efficacy of music therapy: a case study of Chinese traditional music (in Chinese). *Science & Technology Vision*, 36(24), 63–66. https://doi.org/10.19694/j.cnki.issn2095-2457.2020.36.24

[5] Jensen, M. P., & McFarland, C. A. (1993b). Increasing the reliability and validity of pain intensity measurement in chronic pain patients. *Pain*, 55(2), 195–203. https://doi.org/10.1016/0304-3959(93)90148-i

[6] Topham, D., & Drew, D. (2017). Quality Improvement Project: Replacing the Numeric Rating Scale with a Clinically Aligned Pain Assessment (CAPA) Tool. *Pain Management Nursing*, 18(6), 363-371. doi: 10.1016/j.pmn.2017.07.001

[7] Meng, X., & Wang, D. (2017). Analysis on the theory and application of music therapy of five elements in TCM (in Chinese). *Global Chinese Medicine*, 10(10), 1118-1120.

[8] Li, L. (2019). Effects of traditional Chinese music therapy combined with operating room company on pain and bleeding during cesarean section (in Chinese). *Chinese Folk Therapy*, 27(1), 107-110.

[9] Bai, H. (2020). Modern medical value and cultural connotation of traditional Chinese music therapy (in Chinese). *China Academic Journal*, 32(64), 64–65.

[10] Yang, X., Wang, J., & Lai, W. (2015). The application and progress of music therapy in pain field (in Chinese). *International Journal of Stomatology*, 40(4), 513-515.