

# Effectiveness of Non-Pharmacological Management of Anxiety for Patients going for General Anaesthesia—A Literature Review

Rinal Jadav<sup>1</sup>, Anil Sharma<sup>2</sup>

<sup>1</sup>M.Sc Nursing, <sup>2</sup>Principal, Associate Professor and HOD of Medical-Surgical Nursing,  
Manikaka Topawala Institute of Nursing, CHARUSAT, Gujarat

## ABSTRACT

This study describes different non-pharmacological measures to manage the anxiety for patients going for general anaesthesia. For this the objective is to identify the effect of non-pharmacological management for relieving anxiety for patients going for general anaesthesia.

For fulfilling this objective, I have searched many data sources like Pub Med, Google Scholar, Pro Quest, Cochrane Library, CINAHL (Cumulative index To Nursing & Allied Health Literature), MEDLINE (Medical Literature Analysis & Retrieval System Online), Science Direct.

All the searched literature review concluded that there are many non-pharmacological management like aromatherapy, meditation and yoga, music therapy, pranayama, massage therapy, guided imagery, reiki therapy, skin surface warming technique, acupressure, acupuncture, relaxation technique, etc.

Even though there are many non-pharmacological measures for anxiety, but through this research paper I want to find out that which therapy is most simple, easy, safe and non-invasive to reduce the anxiety and can be used in the hospital as a daily basis without much expenses and special setting for it.

**Keywords:** Assess, effectiveness, Non-pharmacological management, anxiety, patients, general anaesthesia

## INTRODUCTION

“Man is not worried by real problems so much as by his imagined anxieties about real problems”

Epictetus

Anaesthesia is defined as a health practice that makes the patient unaware of their surroundings during a surgical procedure and aims to relieve the patient's intolerable pain during the surgical procedures.<sup>1</sup>

To some, the thought of general anaesthesia strikes terror in their hearts more than the thought of the actual surgical experience. Some anxious patients might even choose to cancel their operations just because of the fears of undergoing general anaesthesia.<sup>1</sup>

Varying levels of anxiety may generate due to factors like, cultural diversity, type of surgery, previous anaesthesia experience, and preoperative information.<sup>2</sup>

There are some different types of therapies used for reducing the effect of anxiety before administration of the general anaesthesia.<sup>3</sup>

## MATERIAL METHOD AND FINDINGS

The study is mainly headed on the non-pharmacological management of anxiety of patients going for general anaesthesia.

Fayazi S., Mehdi R. (2011) conducted a quasi-experimental clinical trial study on the effect of inhalation aromatherapy on anxiety level of the patients in preoperative period on candidate for thorax and abdominal surgery at Ahvaz. 72 patients purposively selected and divided in case and control groups. The Spielberger scale was used. Twenty minute of inhalation containing lavender was used in the case group and placebo (water) in control group. The average of anxiety

---

### Corresponding Author:

Ms. Rinal Jadav

M.Sc Nursing,

Manikaka Topawala Institute of Nursing,

CHARUSAT, Gujarat

Email: rinaljdv@gmail.com

level in inhalation aromatherapy group decreased from 51.00 to 38.61 from before to after the intervention. This average in the inhalation group with placebo was decreased from 50.67 to 49.53 from before to after the intervention. So inhalation aromatherapy was effective on reduction of anxiety level.<sup>4</sup>

Cheng-Hua Ni, Wen-Hsuan Hou, et al (2012) conducted a randomized controlled trial on the anxiolytic effect of aromatherapy on patients awaiting ambulatory surgery admitted at Taiwan. 109 patients were selected and exposed to the experimental (bergamot essential oil aromatherapy) or control (water vapor) condition for thirty minutes and they completed the STAI a second time and vital signs were again recorded. The median changes in STAI, heart rate, systolic blood pressure (SBP), and diastolic blood pressure (DBP) were  $-3.0$  ( $P < 0.001$ ),  $-6.0$  beats/min ( $P = 0.015$ ),  $-11.0$ mmHg ( $P < 0.001$ ), and  $-5.0$ mmHg ( $P = 0.012$ ). No significant changes were observed in the control group ( $P > 0.05$ ). The STAI score decreased in the bergamot group more than control group ( $-4.0$  versus  $-1.0$ ,  $P = 0.005$ ). Aromatherapy is useful as a holistic approach in reducing preoperative anxiety before ambulatory surgery.<sup>3</sup>

Usha K., Suruchi L., et al conducted a Prospective Randomized Control Study on The Role of Rajyoga Meditation for Modulation of Anxiety and Serum Cortisol in Patients Undergoing Coronary Artery Bypass Surgery. 150 patients were randomized in Group 1 (Rajyoga group) and Group 2 (Control Group). Anxiety was measured on a visual analog scale. On the 2nd postoperative day (T3), the patients who underwent Rajyoga training had lower anxiety level in comparison to the control group ( $3.12 \pm 1.45$  vs.  $6.12 \pm 0.14$ ,  $P < 0.05$ ) and on the 5th postoperative day (T4) it was seen that Rajyoga practice had resulted in significant decline in anxiety level ( $0.69 \pm 1.1$  vs.  $5.6 \pm 1.38$ ,  $P < 0.05$ ). Mindbody intervention is found to effective in reducing the anxiety of the patients undergoing coronary artery bypass surgery.<sup>5</sup>

Raghavendra Rao, Nagaratna Raghuram, et al (2000-2004) conducted a randomized controlled trial on Effects of a Yoga Program on Mood States, Quality of Life, and Toxicity in Breast Cancer Patients Receiving Conventional Treatment in Bangalore. 69 Stage II and III breast cancer patients underwent surgery followed by adjuvant radiotherapy (RT) or chemotherapy (CT) or both were randomly assigned to receive yoga ( $n = 33$ ) and

supportive therapy counseling ( $n = 36$ ) over a 24-week period. Intervention consisted of 60-min yoga sessions, daily while the control group was imparted supportive therapy during their hospital visits. A state-trait anxiety inventory, Beck's depression inventory, symptom checklist, common toxicity criteria, and functional living index cancer were used. An ANCOVA showed a significant decrease for the yoga intervention as compared to the control group during RT (first result) and CT (second result), in (i) anxiety state by 4.72 and 7.7 points. It suggests yoga is beneficial in breast cancer patients undergoing conventional treatment.<sup>6</sup>

Maryam M., Mohsen T., Hamidreza G., Alireza F. (2015) conducted a double-blind randomized controlled trial on the effect of sukha pranayama on anxiety in patients undergoing coronary angiography at Iran. 80 patients were randomly allocated to a control and an experimental group. Before undergoing angiography, patients in the experimental group performed sukha pranayama exercises whereas control group only received routine pre-angiography care. A demographic questionnaire and the Spielberger State Anxiety Inventory are used. The data were analyzed by the independent-sample t and the chi-square tests. Before the intervention, the mean of anxiety score in the experimental group was 53.37, which decreased to 40.75 after the intervention ( $P = 0.0001$ ). In the control group, the mean of anxiety score decreased from 54.27 to 51.4. So, Sukha pranayama is effective in alleviating CA candidates' anxiety.<sup>7</sup>

Nazari R., Ahmadzadeh R., Saeid M., Jafar Rafiei K. (2010) conducted an interventional study on the Effects of hand massage on anxiety in patients undergoing ophthalmology surgery using local anesthesia at Iran. 52 patients were randomly selected and divided into two groups, who received hand massage before surgery ( $n=27$ ) and control ( $n=25$ ). A Spielberger State-Trait Anxiety Inventory is used and data was analyzed by chi-square, independent samples t-test, and paired t-test. There were no significant differences in mean anxiety, systolic blood pressure, diastolic blood pressure, heart rate and respiratory rate between the two groups before the intervention ( $p>0.05$ ). However, there was a significance difference in the mean stress level between the two groups after the intervention ( $p<0.05$ ). The two groups did not differ significantly in terms of physiological variables ( $p>0.05$ ). Findings suggested that hand massage before ophthalmology surgery could reduce anxiety.<sup>8</sup>

F. Moradipanah, E. Mohammadi, A.Z. Mohammadi conducted a randomized controlled trial on Effect of music on anxiety, stress, and depression levels in patients undergoing coronary angiography at Iran. 74 patients conveniently selected. Before angiography, descriptive statistics showed that the pre-intervention mean scores were similar in the music intervention group and the control group for anxiety [6.83 (SD 4.14) versus 6.81 (SD 4.29)]. The post-intervention mean scores after the music intervention were lower in the music group than the control group for anxiety [4.13 (SD 3.81) versus 6.10 (SD 3.71)]. The group received the music intervention experienced a decrease in stress, anxiety and depression levels before undergoing cardiac angiography.<sup>9</sup>

Meltem Vizeli Dogan, Leman Şenturan conducted an experimental study on the effect of music therapy on the level of anxiety in the patients undergoing coronary angiography at Istanbul. 200 patients were selected. The study group (100 patients) listened to music throughout the intervention, while the control group (100 patients) not listen the music. It was found that the difference between the mean state anxiety scores obtained before and during the coronary angiography were significantly higher in the study group ( $4.04 \pm 1.15$ ) than the control group ( $2.01 \pm 0.10$ ) ( $p = 0.000$ ). Music therapy affected the intra-operative anxiety level of the patients.<sup>10</sup>

M Jong, A Pijl, H de Gast, M Sjolting conducted a pragmatic multi-centre randomized controlled study on the effects of guided imagery on preoperative anxiety and pain management in patients undergoing Laparoscopic Cholecystectomy. 95 patients were selected. The GI group was provided with a CD to practice guided imagery once a day, 7 days prior to surgery. Control group received standard care instructions only. No significant differences were observed in anxiety and postoperative VAS scores. Twenty-three percent of patients did exercises 1-3 times, 65% 4-7 times and 12% >7 times. Within GI group analysis showed significantly less postoperative morphine use upon better compliance to GI exercises ( $p=0.02$ ). Guided Imagery seems to reduce postoperative pain medication and anxiety.<sup>11</sup>

Ann Linda B., Anne V., Elise B., Elizabeth K., William R. (2007) conducted a blinded, controlled pilot study on effects of Reiki on Pain, Anxiety, and Blood Pressure in Patients Undergoing Knee Replacement at USA. 46 selected and one group of participants received

three or four 30-minute Reiki treatments plus standard of care (SOC) throughout their hospital stay; a second group received three or four 30-minute Sham Reiki sessions (placebo) plus SOC; and a third group received 3 or 4 sessions of “quiet time” plus SOC. For all groups, the first session was to be 1 hour prior to surgery, with subsequent sessions 24, 48, and 72 hours. Only the Reiki group demonstrated reduced State Anxiety scores at discharge compared with intake ( $39.1 \pm 3.3$  vs  $32.1 \pm 2.7$  [ $n = 14$ ],  $P = .004$ , power = 0.88). The corresponding results for the Sham Reiki and SOC groups were:  $42.2 \pm 3.3$  (SEM) versus  $37.4 \pm 2.4$  ( $n = 10$ ) (NS), and  $42.6 \pm 3.6$  (SEM) versus  $40.3 \pm 4.5$  ( $n = 6$ ) (NS). Reiki group showed the largest reduction in state anxiety 48 hours after surgery. So Reiki is effective in reducing pain and anxiety.<sup>12</sup>

O. Kimberger, U. Illievich, R. Lenhardt (2005) conducted an interventional study on the effect of skin surface warming on pre-operative anxiety in neurosurgery patients in USA. 80 patients were randomly allocated to four groups. Treatment was applied for 30–45 min with (1) passive insulation and placebo; (2) passive insulation and intravenous midazolam (30 lg.kg-1); (3) warming with forced-air and placebo; and (4) warming with forced-air and intravenous midazolam (30 lg.kg-1). Thermal comfort levels (VAS 0–100 mm) and anxiety levels (VAS 0–100 mm, Spielberger State-Trait Anxiety Inventory) were assess twice: before the designated treatment was started and before induction of anaesthesia. In the midazolam and the midazolam/warming groups, anxiety VAS and Spielberger state anxiety scores decreased by -19 (95% CI: - 29 to - 9,  $p < 0.01$ ) and - 10 (95% CI: - 14 to - 6,  $p < 0.01$ ), respectively. In the warming and the combined groups, thermal VAS increased by + 26 (95% CI: 17–34,  $p < 0.01$ ). The results indicate that pre-operative warming can be reduce the anxiety.<sup>13</sup>

Doreen Wagner, Michelle Byrne, Katharine Kolcaba conducted an experimental design on Effects of Comfort Warming on Preoperative Patients in USA. 126 patients were selected as population. The treatment group experienced greater reduction in NVAS anxiety scores compared to the control group ( $t = 2.77$ ,  $P = .007$ ). The control group did not experience a significant reduction in anxiety scores ( $t = 0.790$ ,  $P = .431$ ). The relative change in both the NVAS thermal comfort ( $t = 0.047$ ,  $P = .963$ ) and TCI ( $t = 0.913$ ,  $P = .363$ ) were not

significant. Findings suggest that comfort warming is a positive intervention for temperature management and anxiety reduction.<sup>14</sup>

Mansoorzadeh KH, Afazel MR, Taghadosi M, Gilasi HR, conducted a double blind clinical trial on the effect of acupressure on anxiety and dysrhythmia in patients undergoing cardiac catheterization at Iran. 70 patients were randomly divided into experimental group and control group. There was a significant difference between the level of VAS anxiety of angiography blade and its level immediately after the patients entered the angiography ward and before they were injected medication ( $p < 0.001$ ). There was no significant difference between the two groups regarding dysrhythmia (angiography blade and immediately after entering the angiography ward,  $p = 0.2$ ) and (angiography blade and before injecting medication,  $p = 0.6$ ). Acupressure had positive effect on reduction of anxiety and tachycardia.<sup>15</sup>

Shu-Ming Wang, Carol Peloquin, Zeev N. Kain, conducted a randomized, blinded, control on the use of auricular acupuncture to reduce preoperative anxiety at US. 91 elective ambulatory surgery patients were randomized into three groups: Traditional Chinese Medicine group (TCM), relaxation group and control group. Post hoc analysis with one-way ANOVA demonstrated no difference in STAIS scores among the groups before intervention ( $47 \pm 11$  versus  $46 \pm 12$  versus  $45 \pm 13$ ,  $P =$  not significant). The Scheffe test for multiple comparisons has demonstrated that patients in the Relaxation group were significantly less anxious compared with patients in the Control group ( $P = 0.01$ ). The anxiety of patients in the TCM group did not differ significantly from those in the Control group ( $P = 0.28$ ) or in the Relaxation group ( $P = 0.37$ ).<sup>16</sup>

## CONCLUSION

The study suggests that there are multiple pharmacological strategies for managing anxiety. However, anxiolytic medications have different side effects, as well as the likelihood of developing drug dependence. So the best way to reduce anxiety is the non-pharmacological management. As a benefit it can also promote patients' comfort through enhancing stress threshold, regulating the internal processes of the body, and boosting immunity.

**Conflict of Interest:** None

**Source of Funding:** No separate funding was received for this study.

**Ethical Clearance:** The ethical clearance obtained from our Manikaka Topawala institute of Nursing.

## REFERENCES

1. Ruhaiyem M., Alshehri A., Saade M., Shoabi T., Zahoor H., Tawfeeq N. Fear of going under general anesthesia: A cross-sectional study. *Saudi Journal of Anaesthesia* (online journal article).2016 (cited on 2017 June 5);vol.(10):(3): 317–321. Available from: <http://doi.org/10.4103/1658-354X.179094>
2. Maheshwari D, Ismail S. Preoperative anxiety in patients selecting either general or regional anesthesia for elective cesarean section. *Journal of Anaesthesiology Clinical Pharmacology* (online journal article).2015 (cited on 2017 June 8);vol. (31):(2):196-200. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4411833/>
3. Cheng Hua Ni, Wen Hsuan Hou, Ching Chiu Kao, Ming Li Chang, Lee Fen Yu, Chia Che Wu, et al. The Anxiolytic Effect of Aromatherapy on Patients Awaiting Ambulatory Surgery: A Randomized Controlled Trial. *Evidence-based Complementary and Alternative Medicine* (document on the internet).eCAM; 2013 Dec. 17(cited on 2017 June 5). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3877597/>
4. Fayazi S., Babashahi M, Rezaei M. The effect of inhalation aromatherapy on anxiety level of the patients in preoperative period. *Iranian Journal of Nursing and Midwifery Research* (Online Journal Article).2011(cited on 2017 July5);vol. (16):(4):278-283. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3583096/>
5. Kiran U, Ladha S, Makhija N, Kapoor PM, Choudhury M, Das S, et al. The role of Rajyoga meditation for modulation of anxiety and serum cortisol in patients undergoing coronary artery bypass surgery: A prospective randomized control study(document on the internet). *Ann Card Anaesth.*;2017 April-June.(cited on 2017 June 16). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5408519/pdf/ACA-20-158.pdf>

6. Rao RM, Raghuram N, Nagendra HR, Kodaganur GS, Bilimagga RS, Shashidhara HP, Diwakar RB, Patil S, Rao N. Effects of a yoga program on mood states, quality of life, and toxicity in breast cancer patients receiving conventional treatment: A randomized controlled trial. *Indian Journal of Palliative Care*. 2017 Jul;23(3):237. Available from: <http://www.jpalliativecare.com/article.asp?issn=09731075;year=2017;volume=23;issue=3;spage=237;epage=246;aualast=Rao>
7. Maryam M., Mohsen T., Hamidreza G., Alireza F. The effect of sukha pranayama on anxiety in patients undergoing coronary angiography: a single-blind randomized controlled trial. *J Cardiovasc Thorac Res*. (Document on the internet).2016(cited on 2017 June 12);8(4):170-175. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5304100/pdf/jcvtr-8-170.pdf>
8. Roghieh N., Roghieh A., Saeid M., Jafar Rafiei K. Effects of hand massage on anxiety in patients undergoing ophthalmology surgery using local anesthesia. *Journal of Caring Sciences* (online journal article).2012 Aug. 25 (cited on 2017 June 17);vol.(1):(3). Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4161077/pdf/jcs-1-129.pdf>
9. Moradipanah F, Mohammadi E, Mohammadil AZ. Effect of music on anxiety, stress, and depression levels in patients undergoing coronary angiography. Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.659.3446&rep=rep1&type=p>
10. Dogan MV, Şenturan L. The effect of music therapy on the level of anxiety in the patients undergoing coronary angiography. *Open Journal of Nursing*. 2012 Sep 28;2(03):165. Available from: <https://pdfs.semanticscholar.org/bc4f/b020368928fbcf4d1278c4ae323293c6710c.pdf>
11. Pijl A, de Gast H, Sjöling M. P02. 128. The effects of guided imagery on preoperative anxiety and pain management in patients undergoing Laparoscopic Cholecystectomy in a multi-centre RCT study. *BMC complementary and alternative medicine*. 2012 Jun 1;12(S1):P184. Available from: <https://link.springer.com/content/pdf/10.1186%2F1472-6882-12-S1-P184.pdf> Jong M
12. Baldwin AL, Vitale A, Brownell E, Kryak E, Rand W. Effects of Reiki on Pain, Anxiety, and Blood Pressure in Patients Undergoing Knee Replacement: A Pilot Study. *Holistic nursing practice*. 2017 Mar 1;31(2):80-9. Available from: [https://www.researchgate.net/profile/Elizabeth\\_Kryak/publication/315665720\\_Effects\\_of\\_Reiki\\_on\\_Pain\\_Anxiety\\_and\\_Blood\\_Pressure\\_in\\_Patients\\_Undergoing\\_Knee\\_Replacement\\_A\\_Pilot\\_Study/links/58d9b46d45851578dfb13cdf/Effects-of-Reiki-on-Pain-Anxiety-and-Blood-Pressure-in-Patients-Undergoing-Knee-Replacement-A-Pilot-Study.pdf](https://www.researchgate.net/profile/Elizabeth_Kryak/publication/315665720_Effects_of_Reiki_on_Pain_Anxiety_and_Blood_Pressure_in_Patients_Undergoing_Knee_Replacement_A_Pilot_Study/links/58d9b46d45851578dfb13cdf/Effects-of-Reiki-on-Pain-Anxiety-and-Blood-Pressure-in-Patients-Undergoing-Knee-Replacement-A-Pilot-Study.pdf)
13. Kimberger O, Illievich U, Lenhardt R. The effect of skin surface warming on pre-operative anxiety in neurosurgery patients. *Anaesthesia*. 2007 Feb 1;62(2):140-5. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2044.2007.04934.x/full>
14. Wagner D, Byrne M, Kolcaba K. Effects of comfort warming on preoperative patients. *AORN journal*. 2006 Sep 1; 84(3):427-48. Available from: [http://onlinelibrary.wiley.com/doi/10.1016/S0001-2092\(06\)63920-3/epdf](http://onlinelibrary.wiley.com/doi/10.1016/S0001-2092(06)63920-3/epdf)
15. Mansoorzadeh K, Afazel M, Taghadosi M, Gilasi H. The effect of acupressure on anxiety and dysrhythmia in patients undergoing cardiac catheterization. *Life Science Journal*. 2014; 11(1):153-7. Available from: <http://www.healthf.kaums.ac.ir/UploadedFiles/jozveh/gilasi/13dysrhythmia.pdf>
16. Wang SM, Peloquin C, Kain ZN. The use of auricular acupuncture to reduce preoperative anxiety. *Anesthesia & Analgesia*. 2001 Nov 1; 93(5):1178-80. Available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.558.6917&rep=rep1&type=pdf>

Copyright of International Journal of Nursing Education is the property of Institute of Medico-legal publications Pvt Ltd and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.