Development of Comprehensive Yoga Program for Cervical Carcinoma

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Abstract

Background: Prior research reveal the benefits of yoga in managing fatigue, stress and psychosocial outcomes in cervical carcinoma; however, a definite structured yoga program is unavailable. In this study an effort is made to develop and validate a structured yoga program for cervical carcinoma.

Methods: A detailed review of ancient and contemporary yoga literature was conducted to design a basic yoga program. Five yoga experts, who fulfilled the inclusion criteria validated the program. 27 practices were rated as (i) not essential, (ii) useful but not essential, and (iii) essential; Lawshe's content validity ratio (CVR) was calculated.

Results: Eighteen practices exhibited significant content validity (cut-off value: 0.99, as calculated by applying Lawshe's formula for the CVR). One practice was added to the module by the experts, making a total of 19 practices including meditation. Yoga nidra was added as a special practice on days of high fatigue.

Conclusions: The designed program received good content validity and thus is valid for cervical cancer. The program is to be applied on patients to assess its acceptability and feasibility.

Keywords: Yoga; Cancer; Integrative care; Development; Palliative care; Supportive care

Introduction

After breast cancer the incidence of cervical cancer is the highest in women worldwide, resulting in lack of vitality and diminished quality of life [1]. Human Papilloma Virus (HPV) infection causes more than 90% of the cases [2]. Over 500,000 new diagnosis and mortality of over 250,000 deaths was recorded (2012) [3]. Developing countries account for 80% of the world burden, due to ineffective control programs and screening [4]. Early-stages can be effectively cured. Chemoradiotherapy is the standard of care; Concurrent Cisplatin-based chemotherapy is advocated with Immunotherapy and hormonal replacement therapy [5-8].

Cervical cancer treatment presents with side effects which cause interruption in treatment outcomes, financial and psychosocial difficulties. Recurrent treatment remains largely ineffective hampering daily life [5].

Alternative methods have been adopted, of which Yoga is one. Significant difference was observed with yoga in quality of life, stress, emotional status, fluctuation in mood, depression, anger and confusion [9]. Literature on the effect of yoga on breast carcinoma is available, but no literature on the development of yoga module as an adjuvant therapy along with chemo-radiotherapy for cervical cancer patients [10].

Methods

Structuring integrated yoga module for cervical cancer

Integrated Yoga Module is structured by reviewing ancient yogic classical texts, recent research publication and other recent Yoga publications.

Yoga experts

Experts were chosen among Oncologists, doctorate (PhD) in Yoga and therapists holding minimum experience of 3 years.

Inclusion Criteria

- Classical texts of Yoga therapy, research publication, recent books and journals and research thesis which has the descriptions of Yoga for cancer
- To check the content validity, Yoga clinicians (MD - Yoga) / Yoga doctorates (PhD - Yoga) with minimum experience of 5 years in the field and Yoga instructor with at least 3 years’ experience after post formal education, in association with oncologists.
- Consented to the study.

Exclusion criteria

- Yoga therapists with less than 3 years’ experience.
- Yoga instructors dealing with healthy individuals only.

Design

Classical Yoga text books contemplate few postures and techniques which can be advocated for Cancer. To develop the protocol, following steps were followed:
Step1: Review of classical text and research literature: Classical texts, recent books on Yoga for Cervical cancer and other cancers, relevant dissertation/ thesis and research publications were referred for the development of the Yoga programme.

Step2: Development of Yoga module: Research studies on yoga published in scientific journals were extracted. Relevant practices were included in the Yoga module.

Step3: Validation of Yoga module: Validation was done with the help of 5 experts on a three point scale (0 to 2), 2 for essential, 1 for useful but not essential and 0 for not necessary.

Step 4: Data analysis: Results were tabulated and analysed using Lawshe’s Content Validity Ratio (CVR) to check the content validity [11].

Step 5: Report writing: The final outcome report of the study conducted, inclusive of the results and discussion is formatted.

Data analysis
The content validity was calculated using Lawshe Method (1975), If E denotes the number of experts marking a domain as essential and N the total number of experts, then Lawshe’s CVR is defined as the ratio of (Ne-N/2) and N/2 which arrive at the critical values as per Lawshe (1975). Where, Ne=total no. of Essentials for each practice and N=total no of panellists. The mean CVR represents the overall content validity.

Results
The CVR ratio for all practices of the module is 0.762 for 5 experts.

Table 1 Shows CVR of Yoga practices of Integrated Yoga module as per Lawshe formula.

| No. | Practice (Sanskrit)          | Practice (English)       | Rounds | Time (minutes) |
|-----|-------------------------------|--------------------------|--------|----------------|
| 1   | Kati Shithilikarana           | Waist rotation           | 3      | 1              |
| 2   | Janu Shithilikarana           | Knee tightening          | 3      | 1              |
| 3   | Shvasa kriya                  | Hands in & out           | 3      | 3              |
| 4   | Shvasa kriya                  | Hand stretch Breathing    | 3      | 3              |
| 5   | Vyaghras shvasana Kriya       | Tiger breathing          | 3      | 3              |
| 6   | Moon pose Breathing           | Quick Relaxation Technique | 1     | 4              |
| 7   | Ardha Chakrasana              | Lateral arc pose         | 5      | 5              |

All the above practices have been used in various RCT studies and the experts opine that these practices can be performed by cancer patients. However, the severity of any pain, GI disturbances and fatigue should be taken into consideration at every session. There are more chances of acceptability of this Yoga module, hinting towards a more positive effect with minimum negative effect if any.

| Sl No | Specific Practice | Ne | N | N/2 | Ne-N/2 | CVR  |
|-------|-------------------|----|---|-----|--------|------|
| 1     | Griva Shithilikarana | 3  | 5 | 2.5 | 0.5    | 0.2  |
| 2     | Bhuja Shithilikarana | 3  | 5 | 2.5 | 0.5    | 0.2  |
| 3     | Kati Shithilikarana  | 5  | 5 | 2.5 | 2.5    | 1    |

Table 1: Shows CVR of Yoga practices of Integrated Yoga module as per Lawshe formula1.
Cancer can affect the society as a financial burden, personal burden by loss of function, depression, pain followed with role changes and dependence.

Results indicate personal burden (high level of pain, fatigue, and depression associated with cancer) and low quality of life have higher adverse effect [14].

Globally yoga therapy has received widespread acceptance as a complementary and alternative practice for a range of diseases. Growing evidences compel CAM practitioners to adopt Yoga therapy. Several schools of Yoga (Asana based, Pranayama based, Meditation based) are set up, having their own approach in treating cancer.

**Rationale for using yoga intervention in cervical cancer**

The mind and body act in coordination through yoga enhancing mood and relieve pain.

Reports highlighting the beneficial effect of meditation and yoga amongst breast cancer patients are available. It can similarly be applied to cervical cancer. As yoga affects both the physical and mental entities of the body, improvement in the quality of life is achieved.

It integrates awareness of breath rendering deep relaxation. Yoga can effectively manage symptoms like distress, compromised sleep and fatigue [15]. Meditation improves the psychosocial aspects of cancer [16]. Regular practice boosts the self-esteem [17].

There is no prior mention of a standardized integrated Yoga module, exclusive for cervical cancer patients. In this study, an effort was made to develop a yoga module by using available evidences and textual references, to be implemented for 4 weeks with personalised 60 minute duration sessions.

Around 25 research studies from different schools of Yoga on Oncology and 15 Yoga and Ayurveda related classical and recent books on Cancer were referred to formulate the module.

The Yoga practices were finalised based on the content validity criteria. After thorough literature review, the module was drafted and validated by Yoga experts.

The module was developed for 60 minutes by the yoga experts and each practice was reviewed in detail with oncologists, oncology nursing staff and supporting oncology staff to finalise the practices feasible for the patients (Table 3).

Data analysis revealed a CVR ratio of 0.762 for all 27 yoga practices of formulated yoga module for Cervical cancer. The final results of the protocol to be achieved by Lawshe’ CVR ratio is 0.99 for 5 experts involved in the study. The limitation being, even if one of the practices receives a score less than maximum (2, essential practice), the overall CVR will drop to >0.99. Thus, validation by larger number of experts can result in better acceptance. Practices for which CVR was less than 0.99 were excluded from the module.

**Table 2: Evaluated/recommended integrated Yoga module for Cervical Cancer as per the CVR ratio.**

**Discussion**

Cervical cancer affects women in the productive age of 40-60 years [12]. Risk factors are compromised immunity, Contraceptive pills, early marriage and multiple sex partners [13].

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| Practices | Experimental/Journal Reference | Classical reference/Book reference |
|----------|-------------------------------|----------------------------------|
| **Specific Practices** | | |
| **1. Loosening Exercises** | | |
| a. Neck Movements | Monro, R et al (1990) *Yoga for Common Ailments*, Eds. Nanay Ford Kohna A, Gaia origina, Pub: Simon & Schuster Inc, New York, London, 14. | Nagaratna et al., 1990 |
| b. Shoulder movements | | |
| c. Waist twisting | | |
| d. Knee tightening | | |
| e. Ankle rotation | | |
| **2. Breathing Techniques** | Siedentopf, F et al. (2013) *Yoga for patients with early breast cancer and its impact on quality of life—a randomized controlled trial.* | Nagaratna et al., 2012 |
| a. Hands in & out | | |
| b. Hand Stretch | | |
| c. Rhythmic tiger breathing | | |
| d. Shashankasana Breathing | | |
| **3. Asana- Standing (wall support)** | Bijlani, R. L et al (2005) *A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus.* Journal of Alternative & Complementary Medicine, 11(2), 267-274. | Nagaratna et al., 1990 |
| a. Ardha Kapotasana | | |
| b. Ardha Chakrasana | | |
| c. Pada Hastasana | | |
| **4. Asana -Sitting Postures** | Dandawate et al (2010). *Magic of ayurveda ad yoga: A overview.* | Asana Pranayama Mudra Bandha (Swami Satyananda, 2013) |
| a. Paschimottanasana | | |
| b. Ardha Matsyendrasana | Lee, M., Moon, W., & Kim, J. (2014) *Effect of yoga on pain, brain-derived neurotrophic factor, and serotonin in premenopausal women with chronic low back pain.* Evidence-Based Complementary and Alternative Medicine, 2014. | Hatha Yoga Pradeepika (2013) |
| **5. Asana-Supine** | Mustian et al (2013). *Multicenter, randomized controlled trial of yoga for sleep quality among cancer survivors.* Journal of Clinical Oncology, 31(26), 3233-3241. | Asana Pranayama Mudra (2012) |
| a. Sethu bandhasana | | |
| b. Folded leg lumbar stretch | | |
| c. Ardha Pavanamuktasana | | |
| **6. Asana-Prone** | Littman, A. J. et al (2012) *Randomized controlled pilot trial of yoga in overweight and obese breast cancer survivors: effects on quality of life and anthropometric measures.* Supportive Care in Cancer, 20(2), 267-277. | Light on Yoga (Iyengar, 2011) |
| a. Bhujangasana | | |
| b. Ardha shalabhasana | Nagaratna et al., (1990) | |
| **7. Pranayama** | | |
| a. Kapalabhati | Chakrabarty, J. et al (2015). *Effectiveness of pranayama on cancer-related fatigue in breast cancer patients undergoing radiation therapy: A randomized controlled trial.* International Journal of Yoga, 8(1), 47. | Hatha Yoga Pradeepika, (2013) |
| b. Vibhagya Pranayama (Sectional Breathing) | Rao et al (2008). *Effects of yoga on natural killer cell counts in early breast cancer patients undergoing conventional treatment.* Comment to: recreational music-making modulates natural killer cell activity, cytokines, and mood states in corporate employees. Medical Science Monitor, 14(2), LE3-LE4. | |
| - Abdominal | | |
| - Thoracic | | |
| - Clavicular | | |
| c. Nadi Shuddhi | | |
| d. Bhramari | | |
| e. Ujjiayi Pranayama | | |
| **8. Relaxation** | | |
| a. Quick relaxation | Kang, G., & Oh, S. (2012) *Effects of mindfulness meditation program on perceived stress, ways of coping, and stress response in breast cancer patients.* Journal of Korean Academy of Nursing, 42(2), 161-170. | |
| b. Deep relaxation | | |
| **9. Meditation** | | |
| | | |
A total of 19 practices were finalised with the addition of butterfly practice making it a total of 20 practices. The module was sent to the experts for finalising. No further changes were suggested by the experts.

**Conclusion**

Integrated Yoga module consists of 20 practices for Cervical cancer which were constructed based on literature review. The Integrated Yoga module validated by a panel of 5 yoga experts and oncologists, revealed that, among 27 yoga practices, 18 were found to be essential (CVR ≥ 0.99) and 9 were found to be not essential (CVR ≤ 0.99). One practice was added to the module by the experts, making a total of 19 practices including meditation. Yoga Nidra was added as a special practice on days of high fatigue.

The present validation brings greater acceptability of Yoga therapy module for cervical cancer. Addition of one practice was made based on the suggestions from the expert authors. A panel of greater number of experts would fetch higher CVR scores for the current module. There is scope for more research to evaluate effect of Yoga practice and its mechanism.

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