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THERAPEUTIC EFFECTS OF YOGA FOR PATIENTS WITH KNEE OSTEOARTHRITIS

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ABSTRACT

Knee osteoarthritis, apart from affecting the physical conditions also affects the person's mental health. There is a shortfall of undefined connection between disease severances and the reported pain and disability in knee osteoarthritis. Several forms of therapeutic and non-therapeutic interventions are used to treat patients with knee osteoarthritis. However, the selection of a right combination of therapeutic interventions is a challenge to practicing health professionals. The present study aims to find the therapeutic effects of yoga for knee osteoarthritis.

KEYWORDS: Knee Osteoarthritis, Psychological Well Being, Anxiety, Pain, Quality of life

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INTRODUCTION

Knee osteoarthritis is a rheumatologic disease consisting of pain and stiffness. The major noticeable changes are not seen in the initial stages and the pain shall not be recognized till the periosteum membrane, joint sac, peripheral meniscus, or synovium are affected. The cartilage degeneration seen in Knee osteoarthritis may be of "stress induced senescent state"[1]. Weakness of muscles is present and proprioception can also be affected. The disturbed joint function that occurs in knee osteoarthritis because of the changes can ultimately lead to pain[2].Yoga is a form of mind-body fitness that involves a combination of muscular activity and an internally directed mindful focus on awareness of the self, the breath and energy[3].The word yoga is derived from the Sanskrit root Yuj, which means to join or to yoke. It is the union of the individual self with the universal self [4].Research studies results show, yoga can be a safe intervention for patients with Knee osteoarthritis [5-9].

YOGA AND PSYCHOLOGICAL WELL-BEING

Individuals with Knee osteoarthritis characteristically exhibit symptoms like pain and limited range of motion leading toreduced quality of life and general well being. Individual differences exist in the level of experience of pain depending on person's way of life and genotypic profile [10-11].Anxiety has been found to be linked with osteoarthritis knee pain in women [12]. Pain catastrophising, poor pain coping strategies, depression or depressed mood and social isolation are also related to increased pain levels in people with knee osteoarthritis [13-16].Yoga helps to protect the joints from more destruction. Yoga has been accepted by the modern world as an effective psycho–physical therapy for various health problems including knee osteoarthritis [17-20]. The holistic components of yoga leads to pain reduction, improvement of joint function and improve mental condition of the patient [21]. Approximately 50% of patients with chronic musculoskeletal disorders reported using complementary and alternative medicines like yoga [22]. Most of the previous studies have used either yoga therapy interventions derived from a particular school of yoga or have tested individual yogic practices [23].

PHYSIOLOGICAL BENEFITS OF YOGA

Postures (asana), breathing (pranayama) and meditation may interact with different somatic and neuro-endocrine mechanisms, leading to beneficial effects [24]. Pranayama practices and meditation can reduce stress levels, increase mental

alertness, promote neural plasticity in a positive direction and increase the secretion of melatonin which, in turn, might be responsible for perceived well-being [25-27].

Yoga is increasingly being used as a therapeutic intervention for knee osteoarthritis and it is also recommended by the Arthritis Foundation (AF) to improve joint flexibility and decrease stress. Asana postures, pranayama techniques, and meditation may reduce symptoms like pain, morning stiffness by realigning the skeletal structure, increasing the strength of the muscles and increasing the flexibility of joint structures. Yoga improves self-efficacy and emotional well-being. It improves balance, strength, flexibility, and relaxation in the general adult population [28]. Regulation of sympathetic and parasympathetic tone due to various factors such as reduced heart rate ,raised respiratory volume and multiple reactions of the body to stress may contribute in a combined manner to reduce pain[18].Yoga is said to have effects at the cellular level. Since pro-inflammatory interleukin-1 and tumor necrosis factor produced invitro are reduced under low-level intermittent fluid pressure, it is possible that yoga may also reduce fluid pressure, thereby leading to healthy cartilage that would be lost by reduced mobility [28-32].

PAIN AND QUALITY OF LIFE

The findings of the meta-analysis study which included nine trials with 640 individuals suffering with lower extremity osteoarthritis in the age group between 50–80 years, with 80.3% female participants suggest that yoga can be of use in reducing pain and stiffness as well as improving function[33].Peer-reviewed, meta-analyses research study has demonstrated the effects of Iyengar yoga and a strengthening program on pain, stiffness, and function of people with knee osteoarthritis[17].Subjects between 50 and 75 years of age, diagnosed with knee osteoarthritis were assigned to one of three groups- Iyengar yoga group (n = 4), the strengthening group (n = 7), and control group (n = 4). Between the three groups, the Iyengar yoga group reported higher levels of perceived improvement.

An interview of 2,679 participants was conducted with questions relating to current osteoarthritis treatments, including Complementary and Alternative Medicine (CAM-seven alternative medical systems, mind-body interventions, manipulation and body-based methods, energy therapies, and three biologically based therapies) and

conventional medications. Participants were classified into conventional medication users only, CAM users only, users of both, and users of neither. CAM use was more prevalent (47%), with 24% reporting the use of both CAM and conventional medication. KOOS-Quality of Life and Short Form 12 Physical Scale scores were inversely related to all treatments. The study has found that CAM is commonly used to treat joint and arthritis pain [34].

The effects of integrated yoga on pain, morning stiffness and anxiety were investigated among 250 participants with knee osteoarthritis (35–80 years), randomly assigned to yoga or control group. The integrated yoga consisted of yogic loosening and strengthening practices, asanas, relaxation, pranayama, and meditation. The control group had physiotherapy exercises. Both the groups had transcutaneous electrical stimulation and ultrasound treatment followed by intervention (40 min) for 2 weeks with a follow-up for 3 months. Assessments were done on the 15th (post 1) and 90th day (post 2). Reduction in resting pain was better in yoga group (post 1 = 33.6% and post 2 = 71.8%) than in control group (post 1 = 13.4% and post 2 = 37.5%) [18].

Thirty-six participants were randomly assigned to a study for an 8 week yoga program that involved group and home-based sessions or waitlist control. The primary outcome was WOMAC that measures pain, stiffness and function at 8 weeks. Data were collected at baseline- 4 weeks, 8 weeks, and 20 weeks. Participants in the treatment group showed significant improvement in WOMAC pain, stiffness, and SPPB (repeated chair stands) at 8 weeks. Cheung, Wyman & Savik (2014) observed that in their study there were no yoga-related adverse events and it can be safely administered to old women with knee osteoarthritis [35].

In a systematic review of 11 studies on the significance of yoga in knee arthritis, it was found that there was no adverse event and attrition rate was lower than for typical exercise interventions. Evidence was strong for the reduction of disease symptoms (tender/swollen joints, pain) and disability, as well as improved self-efficacy and mental health. The study recommends that the goal of future studies should be to create standardized protocols that are optimized to enhance safety, enjoyment, and long-term adherence (including specific poses and modifications) [36].

Yoga is defined as the balanced state of mind in the face of the trials and tribulations of life situations, be it physical or psychological. This emotional stability is achieved by the multifactorial approach of yoga that includes asanas, breathing techniques, and meditation Leading to improvement in QOL[18]. Pain, perceived instability, and functional limitations are common downstream effects of knee osteoarthritis degenerative process. During the course of time, self-efficacy declines, QOL deteriorates, and physical dependency and social isolation may ensue. Pain may trigger anxiety and depression, which perpetuates physical and psychological decline associated with the disease. Yoga helps in reducing cortisol levels, leading to counter regulation of depressive symptoms [37,38].

CONCLUSION

Understanding the physiological process and the effect of osteoarthritis will enforce a rational therapy. Rational treatment needs to focus on estimating which structure causes the pain, as patients look for medical support mainly due to discomfort from pain. Yoga can be used in conjunction with traditional therapies to treat musculoskeletal problems, especially chronic pain conditions such as knee osteoarthritis.

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