

Exploring knowledge, attitude and practice regarding yoga among patients attending cardiology and neurology clinics in a tertiary care hospital in northern India

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ABSTRACT

Background. The use of complementary and alternative medicine, particularly yoga is increasing in non-communicable diseases (NCDs). We assessed the overall awareness regarding yoga among patients and their opinion about it as an adjunct therapy for NCDs.

Methods. We included 384 patients attending the cardiology and neurology clinics at a tertiary care centre in northern India. A questionnaire was developed to assess the knowledge, attitude and practice of yoga as a therapy.

Results. Ninety per cent of patients were aware of yoga, mainly through print and electronic media. Of the surveyed patients, 22% practised yoga. Lack of time and knowledge were cited as the main reasons for non-practice among the non-practising patients (88%), of which 82% believed that yoga could be practised along with modern medicine. In addition, 61% were ready to accept treatment if offered at the surveyed tertiary care centre.

Conclusions. Adequate knowledge, awareness and attitude towards yoga appears to be present in contrast to the low practice among the patient population surveyed. If implemented in an integrated fashion, the patients were willing to accept yoga as an adjunct therapy for their cardiac and neurological disorders—an encouraging sign given the burden of NCDs in India.

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INTRODUCTION

There has been an increase in the burden of non-communicable diseases (NCDs) relative to the burden of communicable, maternal, neonatal and nutritional diseases as observed by the

Global Burden of Disease Study. The epidemiological transition level (ratio of all-age disease-adjusted life years due to communicable, maternal, neonatal and nutritional diseases versus those due to NCDs and injuries together) changed from >0.75 in all states except Kerala in 1990 to ≤ 0.75 in all states in 2016.¹ The Heart Disease and Stroke Statistics 2017 update reports cardiovascular diseases to be the leading cause of mortality and stroke as fifth on the list, globally.² In India, the present scenario is even worse, as two-thirds of the burden of NCDs mortality in India is contributed by cardiovascular conditions.³ Psychological stress is believed to be an independent risk factor for cardiovascular diseases causing negative affective states; that is, feelings of anxiety and depression, which, in turn, exert direct effects on biological processes or behavioural patterns that influence disease risk.⁴

The increasing burden of NCDs means it is no longer possible to manage patients based on individualistic strategies such as secondary and tertiary prevention. This has led to a shift in focus to primordial and primary prevention, which can be applied at a population level. Non-pharmacological management strategies such as exercise and yoga are non-invasive, feasible and affordable practices, which can be applied both at an individual and population level. In a supervised environment, they may be used as a preventive strategy for high-risk individuals to reduce cardiovascular risk as well as a rehabilitative strategy for patients with cardiovascular ailments.

Yoga is an ancient practice, which is being used for holistic well-being including spiritual upliftment since ages. Its three components are *asana* (physical postures), *pranayama* (voluntary breath regulation) and *dhyana* (meditation).

Yoga is gaining large-scale attention as a therapy for various neurological and cardiovascular diseases.⁵ Several studies of yoga in cardiovascular diseases have reported a decrease in the number of angina episodes per week and need for revascularization procedures,⁶ improved exercise capacity, reduction in weight, body mass index (BMI) and other anthropometric assessments, improvement in lipid profile and blood glucose levels.⁷ Follow-up angiography at one year has shown significant regression of lesions and with progression of fewer lesions in the yoga group, compared with the control group.⁸ Therapeutic yoga in neurological conditions such as Parkinson disease,⁹ multiple sclerosis,¹⁰ epilepsy and stroke¹¹ has shown functional improvements in conjunction with the quality of life.

The role of integrative medicine is still in infancy in India and there is an emerging need to educate people and create awareness

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about the benefits of inclusion of yoga as an adjunct to allopathic treatment.¹²

Survey-based cross-sectional studies have been conducted to understand and explore the knowledge, attitude and practice (KAP) of meditation and yoga among adults with cancer and pregnant women.^{13–15} Recently, a nationwide door-to-door cluster sample survey was conducted to assess the KAP of yoga.¹⁶ To the best of our knowledge, no study has tried to understand the KAP of yoga among patients with cardiovascular and neurological disorders, which constitute the major share of the burden of NCDs in India. We conducted a survey-based cross-sectional study to assess the overall awareness regarding yoga among patients attending the cardiology and neurology outpatient services and their opinion about it as an adjunct therapy.

METHODS

Study design and settings

Our study was an observational, cross-sectional, questionnaire-based survey. It was conducted on patients attending the Cardiology and Neurology outpatient services of All India Institute of Medical Sciences, New Delhi, from 31 October 2018 to 21 January 2019. Data were collected using a semi-structured questionnaire consisting of closed and open-ended questions.

Participants

All patients 18 years and above, with sufficient understanding of English or Hindi to give consent and complete the questionnaire, attending the outpatient services of the above departments were invited to participate in the study. Patients who had any cognitive, psychological or psychiatric disorder(s) as identified on their medical records or otherwise distressed, judged by the research nurses and staff were excluded from the survey. Written informed consent was obtained from each respondent.

Sample size

Considering about 500 outpatient attendance on an average day at the tertiary healthcare settings, the population in three months was estimated to be 37 500. In view of the same with a confidence interval of 95% and keeping the margin of error as 5%, a sample size of 381 was estimated for our study.

Development of the questionnaire-based survey

Since no KAP questionnaire exists for such a study population, a new questionnaire was developed as per the steps of test construction. The final version of the questionnaire was developed as a result of a focused group discussion of a 10-member multidisciplinary team including two clinicians (one cardiologist and one community medicine expert), four AYUSH physicians, a clinical neuropsychologist and a statistician. The developed questionnaire was assessed by 15 yoga professionals to examine the legibility, clarity and sensibility of the questions. To enhance the content validity of the questionnaire and ensure its appropriateness, the questionnaire was administered to 30 healthy participants. The questionnaire was developed in English and Hindi. The questionnaire was designed to collect information about the sociodemographics, and KAP of patients towards yoga. The first section included questions about the sociodemographic details such as age, gender, religion, marital status, education, income, family type and patient data including information about the current disease,

duration and severity. The information about KAP was the second component of the questionnaire. The *knowledge* domain was assessed through 5 questions regarding the facts and misconceptions about yoga. The *attitude* domain had 9 questions that enquired about their understanding and preconceived notions towards yoga. The *practice* domain had 6 questions that assessed practice by questioning about the frequency, type, duration, sources and need of practice. This section also enquired about the reasons for not practising yoga among the non-practitioners.

Data collection

Data were collected by five trained healthcare professionals including nursing staff and field workers.

Ethical considerations

The institutional ethical approval was obtained before initiating the study, although there was no potential risk involved in the study.

Data analysis

Categorical variables were summarized as frequencies and percentages, and numerical variables as mean and standard deviations. The Chi-square test was used to explore the association between yoga practitioners and the following: (i) gender; (ii) residential status; and (iii) age group. Continuous variables were compared across patients' demographic using the independent sample *t*-test. Statistical analyses were carried out in STATA 14.0.

RESULTS

Of the 395 patients screened and approached in the OPD of cardiology and neurology departments, 384 completed the questionnaire (response rate 97%; Table I).

Of the 384 patients who completed the questionnaire, 84 practised yoga (22%). Of the patients who practised yoga, 45% were between 39 and 59 years of age, 30% between 18 and 38 years and 25% were above 60 years. Among the people who practised yoga, 66.7% were living in urban residential settings whereas 33.3% were living in rural areas. Men outnumbered women (78.5:21.5). A higher percentage of men was also observed in the non-practising group (66.3%).

TABLE I. Sociodemographic characteristics of the respondents

Characteristic	n (%)
Mean (SD) age (in years)	44.67 (15.6)
<i>Gender</i>	
Male	265 (69)
Female	119 (31)
<i>Residential status</i>	
Urban	211 (54.9)
Rural	173 (45.1)
<i>Family type</i>	
Nuclear	173 (45.1)
Joint	211 (54.9)
<i>Socioeconomic status</i>	
Lower	17 (4.4)
Upper lower	130 (33.9)
Lower middle	110 (28.6)
Upper middle	119 (31.0)
Upper	8 (2.1)

There was no significant association between age and yoga practice ($p=0.3$). Yoga practice was found to be significantly associated with residential status ($p<0.01$). Socioeconomic status and gender were significantly associated with the practice of yoga ($p<0.001$ and $p<0.01$, respectively).

Under the knowledge domain, a majority of patients reported electronic and print media (59%) to be the main source of information about yoga (Table II). Seventy-nine per cent of patients were aware of yoga being a practice that is a combination of physical, mental, social and spiritual well-being of a person. Among the patients, 82% agreed that it is a healthy way of living and can help bring a balance between mind and body.

The knowledge was not associated with practice among the survey respondents; only 22% reported that they practised yoga for their health. Only 7% said that they learnt the practice of yoga from a professional yoga trainer and the remaining people reported to have learnt it from unprofessional sources (Table III). Thirteen per cent of those who practised yoga did it specific to their illness, and the remaining practised it for stress relief, improvement in sleep quality and weight and pain reduction (Table IV). The reasons for not practising yoga among non-practitioners include time constraints (35%), lack of knowledge about how to practice (34%), afraid to practice (7%), lack of company/companion (4%) and other reasons (11%). Nine per cent were unwilling to do yoga.

Among the patients, 90% opined that yoga can be practised at home, and 88% believed that yoga has a positive effect on health if practised regularly. Eighty-one per cent presumed that

the practice of yoga will lead to a positive change in mood and behaviour and 82% said that yoga reduces stress.

Only 26% told their doctors that they practised yoga, and only 20% had been advised yoga for their health condition. Sixty-one per cent of the study population opined that yoga should be learned under the supervision of qualified yoga professionals and they were likely to show interest in yoga practice if the service was provided at tertiary care hospitals and other health centres along with conventional medical management/therapy. Eighty-one per cent of patients felt that yoga would improve the efficiency of modern medicine. When asked separately about their opinion on the benefits of yoga, 38% said that the health benefits of yoga may be due to belief/faith.

DISCUSSION

We explored the KAP related to yoga of patients attending the Cardiology and Neurology OPDs as therapy with reference to cardiovascular and neurological diseases in a tertiary healthcare setting.

In our study, a majority of patients were aware of yoga being a healthy way of living. In a previous study that explored the benefits of yoga in persons with epilepsy, 58% of people with epilepsy had similar views.¹⁷ In a nationwide survey, as many as 92.6% believed yoga improved their lifestyle.¹⁶

In our study, 63% agreed that yoga is more than just physical exercises; 59% opined that yoga is a form of spiritual practice while 84% acknowledged that it is not a religious practice. However, this information cannot be generalized as 80% of the respondents were Hindus.

In the *attitude* domain, a majority of patients who were suffering from cardiac or neurological disorders agreed that yoga can be practised at home (90%) and with other systems of medicine such as allopathy (81%). Fifty-eight per cent believed that yoga would improve the efficiency of the ongoing medical therapy, whereas 35% did not know whether it will improve the efficiency of their ongoing treatment.

In the past two decades, there has been an increase in the burden of stress-related diseases worldwide.¹⁸ Psychobiological stress responses emerge through an imbalance between demands and psychosocial resources.¹⁹ Due to the nature of the neurological illnesses, depression and anxiety have been commonly associated with neurological disorders such as multiple sclerosis, stroke, Parkinson disease and amyotrophic lateral sclerosis.²⁰⁻²³ A complex connection between anxiety and heart diseases has been trending lately and is one of the major challenges for cardiac rehabilitation.^{24,25} Eighty-eight per cent of patients said that yoga can have a positive effect on health, which leads to changes in mood and behaviour. Eighty-two per cent of patients felt that yoga can reduce stress. Studies have reported an increase of brain GABA (gamma aminobutyric acid) with specific yoga postures and breathing practices in major depressive disorders.²⁶ Whereas, for cardiovascular conditions, yoga has been shown to improve functional capacity, quality of life and related cardiovascular outcomes.²⁷ In our study, we tried to gain information about the reasons why patients would like to do yoga: 20% of patients practised yoga for stress relief, 19% for increased body awareness, 13% for pain reduction, 13% for flexibility, 13% to treat a specific illness, 11% to reduce weight and 9% to improve sleep. Yoga has emerged as an inexpensive and easy to adopt adjunct therapy tool which can be a promising intervention to bridge the wide treatment gap

TABLE II. Source of information about yoga

Source	n (%)
Television promotional programmes, social media, internet, newspaper or magazine advertisements	284 (59.1)
Family, friend, relative or other patients	126 (26.2)
Events promoting yoga such as International Day of Yoga	40 (8.3)
Others	31 (6.4)

TABLE III. Source of learning yoga

Source	n (%)
Television promotional programmes, social media, internet, newspaper advertisements	207 (54)
Someone from family or relative	50 (13)
School, college, community centre, colony park	31 (8)
Trained yoga professional	27 (7)
Friends or yoga camp	31 (8)
Books and magazine	19 (5)
Others	19 (5)

TABLE IV. Reasons for giving preference to yoga

Reason	n (%)
Stress relief	77 (20)
Increased body awareness	73 (19)
Reduce pain	50 (13)
Flexibility	50 (13)
Improve sleep	35 (9)
Reduce weight	42 (11)
As a sport	7 (2)
To treat a specific illness	50 (13)

that exists between the prevalence of mental illnesses and the treated population in the Indian scenario.^{28–30}

On being enquired about their interest in services such as yogic counselling and yoga sessions, about 61% of the patients showed interest towards the same, provided it was prescribed and done under the guidance of their treating physician. A positive attitude and the willingness to participate in research endeavours that use yoga as a therapeutic intervention, if it is given under the guidance of trained healthcare professionals has been observed previously.¹⁷ Patients reported that only 20% of doctors advised them to practise yoga. At the same time, when asked whether they had disclosed their yoga practice to their doctors, only 26% of patients gave an affirmative answer.

Regarding the *practice* domain, 22% of the patients were practising yoga whereas 78% were not, despite reporting knowledge and a positive attitude towards the same. Similar trends for practice were also observed in a study conducted in Lucknow on patients with cardiovascular disease where 87% of the respondents scored in poor practice.³¹ A hospital-based cross-sectional study on yoga and meditation in patients of hypertension in western India also reported poor practice (12.8%).³² Another study reported about one-fifth (19.8%) of patients with epilepsy were practising yoga.¹⁷ As per a recent nationwide survey, only 11.8% of the respondents practised yoga, hence there exists a similar knowledge practice gap throughout the country.¹⁶

About 42% of patients who practised yoga were unaware of the technique of their practice. The patient population practising *Hatha, Asthanga, Raja* or *Kundalini* yoga was less compared to a previous study exploring the practice of yoga in a population with diseases.¹⁷ The most common sources of learning yoga among the ones practising it were television programmes, social media and the internet (54%). Only 7% were doing yoga under the guidance of a trained professional. Such practice trends may arise from a widely held notion that traditional medicine/practices are harmless. However, yoga practice, if not learnt from a qualified professional and practised without adequate precautions and/or knowledge, might lead to detrimental effects even in conditions where it is supposed to be useful.

The most commonly reported reasons for non-practice were lack of time (34%) and lack of knowledge about how to practise yoga (35%). Previous studies also reported few other reasons including distance from the tertiary care centre and unwillingness to come for therapy for an extended period of time.³³

Recent studies from India have reported that an increase in occupational stress can have detrimental effects on physical and mental well-being.^{34,35} Job strain and the incidence of coronary heart diseases among manual and non-manual workers have been well documented.³⁶

Around 78.6% of patients practising yoga were men and 21.4% were women. Asian studies exploring KAP about complementary and alternative system of medicine (CAM) have reported higher numbers of men opting for CAM compared to women.³⁷ In a study done in Australia, higher numbers of women suffering from cancer have been reported to practise meditation compared to men.¹⁴ A total of 79% of the population practising yoga belonged to the middle and upper socioeconomic status, and about 66% of them were from urban areas. This may be attributed to the increased awareness of yoga, access to social media and yoga training centres/institutions in a developing country such as India. However, there has been no

substantive relationship between yoga practice and income in the past.³⁸ As per our survey, 45% of the patients recruited were from rural areas whereas only 33% of the patients practising yoga were from rural areas. Community-based programmes can be beneficial in improving the outreach of yoga.

Yoga can be used as an affordable, non-invasive, preventive and rehabilitative intervention that does not cause any drug interactions, allowing its inclusion as an adjunct to standard pharmacological treatment more acceptable.³⁹ Among clinicians, yoga has emerged as one of the alternative system of medicine towards which they are more aware and acceptable.⁴⁰ Our patients reported willingness to participate in research related to the field of yoga if it was provided under trained supervision in their healthcare settings. Knowledge about CAM among medical professionals will help in the dissemination and acceptance of CAM among the patient and general population.

The limitations of our survey include concerns regarding the generalization of the results as the sample in this study was representative of a tertiary care referral hospital of northern India. Second, patients attending the cardiology and neurology clinics were taken as the study population; hence these data may not be applicable to patients with other medical conditions. Third, the study was done in an urban setting which might account for the higher number of patients practising yoga belonging to the urban strata.

Conclusions

Awareness of yoga, adequate knowledge and a positive attitude towards yoga appears to be present in patients suffering from cardiac and neurological disorders but there is a low frequency of practice of yoga in this patient group. Patients are willing to participate in research studies related to yoga therapy and consider yoga as an adjunct treatment if it is provided in their tertiary healthcare centre under trained supervision and guidance. Relevant campaigns dedicated to implementing yoga as a preventive and rehabilitative step would encourage patients towards the practice of yoga given the burden of NCDs in India.

Conflicts of interest. None declared

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