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A COMMUNITY-BASED CROSS-SECTIONAL STUDY ON YOGA PRACTICE AMONG FEMALES IN KANPUR UTTAR PRADESH

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ABSTRACT

Background: Over the past few decades, yoga has been increasingly integrated into various health and wellness programs, supported by growing evidence of its benefits across physical, mental, and emotional domains.
Aim and Objective: To study the yoga practice among females.
Methodology: This was a Cross sectional study carried out in the shiwalik society of kanpur. A total of 183 females of age group 10-60 years residing in shiwalik society, kalyanpur, Kanpur were included in the study, for at least one year, by self-administered online questionnaire to assess the prevalence and pattern of yoga practice and association of factors influencing them.
Results: In the present study a total of 54.1% females in the society were practicing yoga, majority of them belonged to more than 40 years of age group, practicing mostly at home with the help of mobile phones 2-3 days a week, for at least 20-30 minutes for the purpose of physical fitness and stress reduction.

Keywords: yoga, females, health, society, practice

INTRODUCTION

Yoga, an ancient practice rooted in Indian philosophy, has gained widespread popularity globally for its physical, mental, and spiritual benefits. Yoga is a popular training practice that enhances women's physical activity level and modifies the major risk factors contributing to noncommunicable diseases. Wellness practices are believed to trigger self-healing mechanisms and intrinsic adaptogenic responses. While various aspects of physical fitness, including limb flexibility, balance, and muscle strength, can be improved by the physical postures and breathing exercises used during the practice of yoga, the meditation component has been shown to improve mood.
The insights gained from this study will be used to formulate local public health strategies to encourage healthy lifestyles through yoga. Originally rooted in traditional Indian philosophical, spiritual, and health practice, yoga has become a popular avenue to promote physical and mental well-being worldwide (1).

Yoga is an ancient set of integrated mental and physical practices designed to foster the long-term experience of positive psychological states, including transcendence of the ordinary, spirituality, self-awareness, and inner peace. Yoga is qualitatively different from any other mode of physical activity in that it consists of a unique combination of whole-body isometric muscular contractions, stretching exercises, relaxation techniques, and breathing exercises (2). Yoga is a type of mind-body fitness that combines physical activity with an internally focused conscious concentration on self-awareness, breath, and energy. Four fundamental concepts underpin the teachings and practices of yoga's healing system. The first premise is that the human body is a holistic entity made up of interconnected dimensions that are inextricably linked to one another, and the health or illness of any one dimension impacts the others. The second concept is that individuals and their requirements are unique, and their practice must be adapted accordingly. The third principle is that yoga empowers students to be their own healers. Yoga engages students in healing. Yoga engages the student in the healing process by playing an active role in their journey toward health, the healing comes from within, instead of from an outside source and a greater sense of autonomy is achieved. The fourth principle is that the quality and state of an individuals mind is crucial to healing. When the individual has a positive mind-state healing happens more quickly, whereas if the mind-state is negative, healing may be prolonged (1).
Despite a growing body of clinical research studies and some systematic reviews on the therapeutic effects of yoga, there is still a lack of solid evidence regarding its clinical relevance for many symptoms and medical conditions (3).
This study focuses on a community-based cross-sectional analysis of yoga practice among females in Kanpur, a major city in northern India. By examining the prevalence and correlation of yoga practice among women, this research aims to identify key factors influencing their engagement in yoga.

MATERIAL AND METHODS

Study design: A community based cross-sectional study conducted in Kanpur, Uttar Pradesh.
Study population: Females of age group 10-60 years,living in the shiwalik society for at least 1 year.
Study duration: from 27th march 2024 to 27thjune2024.
Study area: Shiwalik society, Kalyanpur, Kanpur
Aims and Objectives:
1. To estimate the prevalence of yoga practice in females of Shiwalik society, Kanpur.
2.To study the pattern of yoga practice in them.
3.To study the association of various factors that influence yoga practice.

Sample size: According to a previous study done by Amit S Mishra etal in 2017. Knowledge, Attitude, and Practice of Yoga in Rural and Urban India, KAPY 2017: A Nationwide Cluster Sample Survey(4) the prevalence 11.8% with absolute precision 5%and 95% confidence interval taken,
by applying formula N=4 PQ/
D^2
Where p=11.8
Q=88.2
D=5% absolute precision, the sample size calculated is 166.5, adding 10% non-response it came out to be 183.
Sampling technique: simple random sampling,technique was applied.All the apartments on Bithoor road, kalyanpur Kanpur were line listed,out of them one apartment was randomly selected by lottery method. A list of total 191 females was obtained from the society office, out of them required 183 females between age 10-60 years were selected by generating random number table in MS Excel.
Inclusion criteria: Females of age group 10-60 years residing in the society for at least 1 year
Exclusion criteria:Those who did not give the consent.
Females with medical conditions that contraindicate yoga practice.
Females of less than 10 years and more than 60 years.
Data Collection: A semi-structured self-administered online questionnaire was created and pretested for clarity and relevance to collect data on the practice and benefits of yoga among participants.

Community members were informed about the study through a local meeting after a discussion with committee members of the apartment.Google form Questionnaires were distributed online through already generated WhatsApp groups of the society as well as face-to-face interviews, depending on literacy levels and preference. Confidentiality and anonymity of participants responses was maintained. Data collected included demographic information and responses related to the practice and benefits of yoga.

CONSENT:
Written informed consent in the Google Form
ETHICAL CLEARANCE: Ethical approval of the study was obtained from the ethical committee of RAMA MEDICAL COLLEGE AND RESEARCH CENTRE, MANDHANA, KANPUR, RMCHRC/ETHICS/2023/3367, dated 04/03/2024

DATA ANALYSIS
Data was subjected to appropriate statistical analysis using Microsoft Excel and JAMOVI software(2.4.8) Prevalence of Yoga practice in females was presented in the form of frequencies and percentages.. Statistical significance (chi-square test and P value) and strength of association was tested between yoga practice and different variables used in the study.

RESULTS
The majority of the participants (80.3%) are 40 years or older. The P-value (0.087) indicates that there is no statistically significant difference in the distribution of yoga practice across different age groups at the conventional 0.05 level.Almost all participants are Hindu (96.7%). The P-value (0.821) suggests that there is no statistically significant association between religion and yoga practice. The majority of participants are married (94.5%). The P-value (0.019) indicates a statistically significant association between marital status and yoga practice, suggesting that marital status may influence yoga practice among females.The majority of participants have at least a graduate degree (63.9%). The P-value (0.080) indicates no statistically significant difference in yoga practice based on education level at the 0.05 level, although it is relatively close to significance.Most participants are not employed (89.1%). The P-value (0.575) shows no statistically significant association between employment status and yoga practice (table1).

Table: 1. Association of Demographic variables with yoga practice among study participants (n=183)

variables	category	Total Number	percentage	Yoga practitioner	Non yoga practitioner	Chi square	P value
Age group	Less than 20 years	7	3.8	6	1	6.57	0.087
	20 to 30 years	3	1.6	2	1		
	30 to 40 years	26	14.2	18	8		
	More than equal to 40 years	147	80.3	73	74		
Religion	Hindu	177	96.7	95	82	0.395	0.821
	muslim	3	1.6	2	1		
	other	3	1.6	2	1		
Marital status	Married	173	94.5	90	83	5.49	*0.019
	unmarried	10	5.5	9	1		

Education	High school	6	3.3	4	2	6.76	0.080
	intermediate	30	16.4	17	13		
	Graduate	117	63.9	56	61		
	Professional degree	30	16.4	22	8		
Occupation	employed	20	10.9	12	8	0.315	0.575
	Not employed	163	89.1	87	76		

Table 2: Association of yoga practice with life style related variables in study paricipants(N=183)

variables	category	Total Number	percentage	Yoga practitioner	Non yoga practitioner	Chi square value	P value
Primary diet	Vegetarian	128	69.9	71	57	0.322	0.570
	Non vegeterian	55	30.1	28	27		
Intake of fruits /day	>5 servings	121	66.1	79	42	18.0	*<0.001
	</=5 servings	62	33.9	20	42		
Intakeofvegetables/day	>5 servings	142	77.6	69	73	7.74	*0.005
	</=5servings	41	22.4	30	11		
History of chronic disease	yes	25	13.7	14	11	0.0422	0.837
	no	158	86.3	85	73		
Family h/o diabetes	One parent is diabetic	47	26.0	27	20	1.01	0.603
	Both parents are diabetic	5	2.7	2	3		
	No diabetes in parents	129	71.3	68	61		
Family h/o hypertension	One parent is hypertensive	60	32.8	27	33	5.37	0.068
	Both parents are hypertensive	11	6.0	4	7		
	No parent is hypertensive	112	61.2	68	44		
Physical activity	Regular mild physical activity at home/work	67	36.6	38	29	2.21	0.331
	Regular moderate physical activity at home/work	83	45.4	47	36		
	No/sedentary activities at home/work	33	18.0	14	19		

Menstrual cycles	regular	115	62.8	74	41	34.9	*<0.001
	irregular	24	13.1	18	6		
	Not applicable	44	24.0	7	37		
Excessive pain during menstruation	yes	79	43.2	29	50	17.4	*<0.001
	No	100	54.6	68	32		
	sometimes	4	2.2	2	2		
Menopause attained	yes	44	24.0	7	37	34.0	*<0.001
	no	139	76.0	92	47		

*P value<0.05 is significant

Table 3: Association of yoga practice with yoga-related variables in study participants(N=183)

Variables	category	Total Number	Percentage	Yoga practitioner	Non yoga practitioner	Chi square value	P value
Yoga practice	yes	99	54.1				
	no	84	45.9				
Place of practicing yoga	home	85	46.4	85	0	183	*<0.001
	Yoga centre	7	3.8	7	0		
	gym	3	1.6	3	0		
	park	4	2.2	4	0		
	Not practicing	84	45.9	0	84		
Method of learning Yoga	friends	6	3.3	6	0	183	*<0.001
	Mobile phones	71	38.3	71	0		
	Trained yoga instructor	11	6.0	11	0		
	television	8	4.9	8	0		
	book	3	1.6	3	0		
	Not practicing	84	45.9	0	84		
Style of yoga practiced	asanas	9	4.9	9	0	183	*<0.001
	pranayam	9	4.9	9	0		
	meditation	18	9.3	18	0		
	Asanas and meditation	6	3.3	6	0		
	Pranayama and asanas	20	10.9	20	0		
	All	37	20.8	37	0		
	Not practicing	84	45.9	0	84		

Frequency of yoga	daily	40	21.9	40	0	183	*<0.001
	2-3 days/week	37	19.7	37	0		
	weekly	22	12.6	22	0		
	Not practicing	84	45.9	0	84		
Duration of yoga	<1 year	66	36.1	66	0	183	*<0.001
	1-5 year	17	9.3	17	0		
	>5 year	16	8.7	16	0		
	Not practicing	84	45.9	0	84		
Time spent in each session	10 minutes	10	6.6	10	0	183	*<0.001
	10-20 minutes	10	9.8	10	0		
	20 -30 minutes	55	30.6	55	0		
	>30 minutes	14	7.1	14	0		
	Not practicing	84	45.9	0	84		
Reason for doing yoga	Physical fitness	22	12	22	0	175	*<0.001
	Stress reduction	19	10.4	19	0		
	both	58	31.7	58	0		
	Not practicing	84	45.9	0	84		
Experience after doing yoga	Improved health	93	50.8	93	0	175	*<0.001
	Same condition	6	3.3	6	0		
	Not practicing	84	45.9	0	84		
Reason for not doing yoga	Lack of time	52	61.9	52	0	183	*<0.001
	Not interested	27	32.1	27	0		
	Lack of facilities	5	6.0	5	0		
Any fears related to yoga	yes	65	35.5	27	38	183	*0.011
	no	118	64.5	72	46		

*P value<0.05 is significant

The majority of participants are vegetarian (69.9%). The P-value (0.570) indicates no statistically significant association between primary diet and yoga practice.A significant portion of participants consume more than 5 servings of fruits per day (66.1%). The P-value (<0.001) indicates a highly significant association between fruit intake and yoga practice, suggesting those who consume more fruits are more likely to practice yoga.Most participants consume more than 5 servings of vegetables per day (77.6%). The P-value (0.005) indicates a significant association between vegetable intake and yoga practice, suggesting higher vegetable consumption is associated with yoga practice

Most participants do not have a history of chronic disease (86.3%). The P-value (0.837) indicates no statistically significant association between chronic disease history and yoga practice.Most participants do not have a family history of diabetes (71.3%). The P-value (0.603) indicates no statistically significant association between family history of diabetes and yoga practice..A significant portion of participants do not have a family history of hypertension (61.2%). The P-value (0.068) indicates no statistically significant association between family history of hypertension and yoga practice.The largest group of participants engage in regular moderate physical activity (45.4%). The P-value (0.331) indicates no statistically significant association between physical activity levels and yoga practiceMost participants have regular menstrual cycles (62.8%). The P-value (<0.001) indicates a highly significant association between menstrual cycle regularity and yoga practice.The majority of participants have not attained menopause (76.0%). The P-value (<0.001) indicates a highly significant association between menopause status and yoga practice,(table2)

A significant proportion of participants practice yoga at home (46.4%). The P-value (<0.001) indicates a highly significant association between the place of practicing yoga and yoga practice.The majority of participants learned yoga through mobile phones (38.3%). The P-value (<0.001) indicates a highly significant association between the method of learning yoga and yoga practice.The largest group practices all styles of yoga (20.8%). The P-value (<0.001) indicates a highly significant association between the style of yoga and yoga practice.A notable portion practices yoga daily (21.9%). The P-value (<0.001) indicates a highly significant association between the frequency of yoga and yoga practice.Most participants have been practicing yoga for less than 1 year (36.1%). The P-value (<0.001) indicates a highly significant association between the duration of yoga practice .

The largest group spends 20-30 minutes per session (30.6%). The P-value (<0.001) indicates a highly significant association between time spent in each session and yoga practice.Most participants practice yoga for both physical fitness and stress reduction (31.7%). The P-value (<0.001) indicates a highly significant association between the reason for doing yoga and yoga practice.A significant portion reported improved health after practicing yoga (50.8%). The P-value (<0.001) indicates a highly significant association between experience after doing yoga and yoga practice.The main reason for not practicing yoga is a lack of time (61.9%). The P-value (<0.001) indicates a highly significant association between reasons for not doing yoga and yoga practice.Among the participants, 35.5% reported having fears related to yoga, while 64.5% reported having no fears (table 3).

DISCUSSION

The findings of the present study have significant implications for public health strategies. Promoting yoga as a low-cost, low-risk intervention can contribute to improved physical and mental health outcomes. Public health campaigns should focus on addressing the identified barriers, such as by providing more flexible yoga schedules and increasing accessibility through community-based programs. In a study by Cartwrightetal in UK the most popular venues were yoga studio (57.5%), community hall (38%) and gyms (25.1%), with 20.7% practising at home using online resources or DVDs (5) but in our study in India, the picture is opposite being the most popular venue was home(46.4%).

According to a study by Cramer et al 51.2% attended yoga classes, 89.9% used breathing exercises, and 54.9% used meditation (1) in the present study 54.1% who were doing yoga out of that 4.9% were doing only pranayama, 9.3% were doing meditation rest doing asanas,with pranayama and meditation. According to the study by Birdee et al Yoga use was more common among those with

higher education,but in this study, it is more common in graduates (6) according to Telles et al the first and most common reason to practice yoga for all respondents was physical fitness,(7). In the current study also the reason for doing yoga was preferably physical fitness. A study by Selvaraj et al states that a greater number of girls having irregular periods have high chances of suffering with PCOS (8) in this study 62.8% females have regular periods, having less chances of PCOS. A study by Acaretal suggests that with differing yoga training periods and frequencies yoga has proved to be an effective intervention in mitigating menstrual pain (9). In this study only 29(15.8%) participants who were practicing yoga were having excessive pain during menstruation.

The ancient practice of yoga has gained worldwide popularity as a way for people to improve their overall health and well-being (10).

Yoga is one of the forms of mindfulness techniques, both in its dynamic form (focusing on movement and breathing) and in the form of relaxation techniques. The regular practice of mindfulness is, among other things, linked to the functioning of various areas of the brain, including the anterior cingulate cortex (ACC). People who meditate regularly show greater activity in the ACC area, which is responsible for self-regulation and drawing conclusions based on experience, thereby aiding optimal decision-making (has an essential role in both learning and using extended action-outcome histories to optimize voluntary choice behavior) (11-13).

CONCLUSION

This community-based study on the practice of yoga among females provides a comprehensive overview of its prevalence, demographic characteristics, perceived benefits, barriers, and associations with health outcomes. The findings indicate a considerable engagement in yoga among the female population, highlighting its broad appeal and potential as a holistic health intervention.

The reported benefits of yoga, particularly in physical and mental health, align with existing literature and underscore its value as a preventive and therapeutic practice. However, significant barriers such as time constraints, accessibility issues, and cultural factors hinder more widespread adoption. Addressing these barriers through targeted public health initiatives can enhance the accessibility and appeal of yoga, making it a viable health promotion strategy for a broader audience.

Despite the limitations of self-reported data and the cross-sectional study design, the positive associations between yoga practice and improved health outcomes suggest its potential efficacy in enhancing community health. Future research should focus on longitudinal studies to establish causality and explore the long-term benefits of yoga.

In conclusion, promoting yoga practice through community-based programs can play a crucial role in improving the health and well-being of females. By overcoming identified barriers and leveraging the perceived benefits, public health strategies can effectively incorporate yoga as a cornerstone of holistic health promotion, contributing to the overall enhancement of community health.

Limitations:

1.Self-Reported Data: The study relies on self-reported data, which can be subject to recall bias and social desirability bias. Participants may overestimate or underestimate their yoga practice and health outcomes.

2.Sample Size and Generalizability: The sample size, while calculated to ensure representativeness, may still be limited in capturing the full diversity of the community. Additionally, findings from this specific community may not be generalizable to other populations or regions with different cultural, socioeconomic, or demographic characteristics.

Recommendation:

Implement public health campaigns to raise awareness about the benefits of yoga and to educate the community about overcoming common barriers. These campaigns can include testimonials from local yoga practitioners and information on how to integrate yoga into daily routines.

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Conflict of interest:there is no conflict of interest.

Author's contribution:all the authors had made substantial contribution to conception,design,data collection,analysis,and interpretation of data.

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