

## RESEARCH ARTICLE



# Knowledge, Attitude and Practice of Physicians Towards Yoga: A Self Determination Theory Approach

**OPEN ACCESS****Received:** 19-06-2022**Accepted:** 03-06-2023**Published:** 12-01-2024**Parimala Srikanteshwara<sup>1</sup>, Judu Ilavarasu<sup>2\*</sup>****1** Division of Yoga and Physical Sciences, Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bengaluru, Karnataka, India**2** Assistant Professor, Humanities and Liberal Arts in Management, Indian Institute of Management Kozhikode, 673570, Kerala, India

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\* **Corresponding author.**

[judu@iimk.ac.in](mailto:judu@iimk.ac.in)

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## Abstract

**Objectives:** To study the perceptions of practicing physicians towards yoga through knowledge, attitude and practice (KAP) survey, integrated with autonomy, competence, and relatedness domains of Self Determination Theory (SDT). **Method:** Online KAP survey based on SDT was designed and administered to 187 physicians (103 allopathy and 84 AYUSH). Purposive snowball sampling was followed by contacting participants through social media. **Findings:** The KAP survey tool had high reliability of Cronbach's alpha 0.95. While competence of yogic knowledge was considerably higher in AYUSH doctors owing to the curriculum prescribed, it was found that allopathic doctors exhibited more inclination towards preventive and rehabilitative treatment from yoga. A large number of allopathic practitioners advocated yoga's long-term psychological and physiological effects, which may have influenced their attitude toward developing competence and motivation to integrate yoga into the mainstream public health program. AYUSH doctors exhibited higher implementation of yoga in their practice due to increased relatedness in comparison to allopathic practitioners. Passivity in implementation through prescription in allopathy may be attributed to stereotypical regulations of medical bodies governing the autonomy of doctors, and a lack of awareness of the empiricism and scientific principles of yoga. **Novelty:** This study provides insights into the knowledge, attitude, and practice towards yoga of allopathy and AYUSH physicians, and also enables us to understand the intrinsic motivation factors that shape physicians' inclinations to involve yoga in their clinical practices.

**Keywords:** Selfdetermination theory; Public health policy; AYUSH; Motivation; KAP survey

## 1 Introduction

Noncommunicable diseases (NCDs) have reached pandemic proportions, soaring the global burden of disease. In particular, non-communicable diseases (NCDs) pose a

greater threat for both developed and developing countries since they undermine worker productivity and health. By 2030, it is expected that non-communicable diseases will account for about 75.3% of all deaths worldwide<sup>(1)</sup>. Increasing rates of NCDs also contribute to patients' catastrophic out-of-pocket expenses<sup>(2)</sup>. Access to affordable health care has become even more challenging due to the lack of resources caused by increasing population, economic inequality, and social challenges. In rural areas, the situation is still more grave. To solve these problems in the healthcare industry, researchers and practitioners are exploring different approaches and new ideas.

Yoga is proving to be a sustainable healthcare solution due to its cost-effective and safe features. The keystone of epidemiological control studies is prevention and many of the systematic reviews and meta-analyses demonstrated that yoga was effective in preventing NCDs<sup>(3,4)</sup>. Not only NCDs, but also in infectious diseases, especially where isolation is required like in recent COVID pandemic, yoga is immensely helpful in maintaining good psychological health. Yoga is a non-pharmacological mind-body intervention that can harmonize physical and mental imbalances and enable positive health. Yoga finds its roots in the traditional Indian medicine, AYUSH and is a popular complementary preventive therapeutic modality. AYUSH is a set of medicine systems that is traditionally practiced in India, and it includes Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homeopathy and Sowa Rigpa. They all have traditional classical texts as source of their knowledge base. They employ herbal medicines, dietary management, yoga including meditation, and other natural remedies. They focus not only treating diseases, but also preventing them, thereby achieving overall harmony and better quality of life. Particularly, the affordability, simple technique and relative safety attributes enhance usage and applicability of yoga. The potential of yoga to prevent many psychosomatic disorders is not been fully harnessed, though mainstreaming of AYUSH medicine is an important component under National Health mission (NHM). It remains an enigma—why, despite having such attractive features, yoga has not been harnessed to its full potential in the health care industry. We attempt to address this research gap in our study.

To fill the knowledge gap, we surveyed physicians' intrinsic motivation to apply yoga in their clinical settings. In this study, we assessed the perceptions of physicians, the primary stakeholders, to adopt and integrate yoga in their clinical practice. The justification for this approach is that, although mainstreaming yoga into clinical practices may seem to be a governance and policy matter, we believe that a grass-roots approach—starting with doctors who try to incorporate yoga into their clinical practices—can be an equally effective strategy. Yoga was successfully incorporated into the standard clinical practices in a big hospital setting at the National Institute of Mental Health and Neurosciences (NIMHANS), which is one example of a success case<sup>(5)</sup>. Large-scale bottom-up strategies like these produce enough evidence of practice to create final policies at the governance level.

There are no studies that examined doctors' intrinsic motivation for incorporating yoga in clinical settings or their hurdles to doing so in the literature. To assess the physicians' attitudes regarding mainstreaming yoga, we used the Knowledge Attitude Practice (KAP) survey approach in our study. The novelty of this study is to integrate the Self Determination Theory (SDT) framework in designing the KAP survey that simultaneously assesses autonomy, competency, and relatedness, the three main components of SDT. SDT is a popular theory of motivation in psychology, developed by Edward Deci and Richard Ryan. It deals with human motivation and focuses on the factors that intrinsically drive individuals to engage in activities and pursue goals. According to SDT, everyone has innate psychological needs for autonomy, competence, and relatedness, which are essential for overall psychological well-being and growth. In this framework, autonomy refers to the need to have a sense of control and choice over one's actions. Competence refers to the need to feel effective and capable in one's activities and pursuits. Relatedness pertains to the need for meaningful social connections and a sense of belonging. SDT suggests that when these psychological needs are satisfied, individuals experience greater motivation, engagement, and well-being, on the other hand, when they are unfulfilled it leads to demotivation, frustration, an overall sense of lack of well-being<sup>(6)</sup>. This study would ultimately help us identify strategies to improve medical education, formulation of health policies and its enforcement to apply yoga in clinical settings.

## 2 Materials and Methods

### 2.1 Study design

This is an online cross-sectional survey designed to examine allopathy and AYUSH physicians' responses in the domains of knowledge, attitude, and practice, capturing the psychological aspects of self-determination theory (SDT), namely autonomy, competence, and relatedness. Allopathy and AYUSH physicians are the main sources of health care providers in India, and their combined opinion would be useful for formulating future policies.

## 2.2 Participants

The participants were physicians from allopathy and AYUSH streams of medicine. The inclusion criteria were: practicing physicians in the aforementioned streams, with either undergrad or post-graduate degrees. Exclusion criteria were to leave out dentists, physiotherapists, nurses, indigenous medicine practitioners, Reiki therapists, and other paramedical staff. The participants were approached mostly through WhatsApp and email, through a purposive snowball sampling technique. Due to the prevailing lockdown and COVID-related restrictions at the time of data collection, this was found to be appropriate and feasible.

## 2.3 Sample size

The required sample size was calculated by keeping an estimated 1,18,727 registered allopathy and 48,326 AYUSH physicians in Karnataka in 2018<sup>(7)</sup>. We kept the margin of error at 8% and a 95% confidence interval. The calculated sample size was 150 physicians. Considering the ratio of allopathic to AYUSH physicians in the total population to be (2.46:1), we needed 107 allopathic and 44 AYUSH physicians. In our study, we ultimately got responses from 103 allopathic and 84 AYUSH physicians.

## 2.4 KAP survey tool

The KAP survey tool was developed in such a way that each of the items in the questionnaire would capture: i) one of the dimensions of knowledge, attitude, or practice (KAP); and ii) one of the dimensions of SDT—autonomy, competence, and relatedness (ACR). The tool so developed based on the ACR-KAP matrix was field validated with three field experts and, incorporating their recommendations, the final version was prepared. This study also received approval from the Institutional Ethics Committee.

## 2.5 Online survey

The survey was circulated as a Google form and could be completed in approximately 10 minutes. The questionnaire consisted of two sections; the first comprised of informed consent, and respondents could proceed to the second only after providing voluntarily consent to participate. The second section comprises 32 items in total, with the initial 7 pertaining to demography. Of the remaining 25 questions, 23 of them had 5-point Likert scale responses of strongly agree, agree, neutral, disagree, and strongly disagree. For the sake of simplicity in analysis, strongly agree and agree were clubbed together under the label agree, and similarly, strongly disagree and disagree were clubbed together under the label disagree (Table 2). There were two open-ended descriptive questions that were optional for the participants. The survey was kept open from the 1st of July 2021 to the 9th of November 2021.

## 3 Results and Discussion

### 3.1 Statistical analysis

The Google form data was downloaded as an excel file and repeated submissions were removed. From the demographic profile in Table 1, we observed that of the 187 physicians, 55.08% (103) were allopathy practitioners and 44.9% (84) were AYUSH practitioners. The breakup percentages of AYUSH physicians are 27.4% (23) Ayurveda, 59.5% (50) in Naturopathy & Yoga, 9.5% (8) Unani, and 3.6% (3) Homeopathy. R statistical software, version 4.0<sup>(8)</sup>, was used to calculate descriptive statistics with percentages, reliability, comparative statistics, and qualitative analysis. We used chi-square test for independence to compare if the two streams of physicians were different in proportion with respect to various variables.

**Table 1. Demographic profile of the KAP-SDT domain survey respondents**

	Allopathy (N=103)	AYUSH (N=84)	Total (N=187)	p value
<b>Age</b>				< 0.001
Mean (SD)	40.524 (12.821)	32.143 (9.448)	36.759 (12.143)	
<b>Gender</b>				0.008
Female	50 (48.5%)	57 (67.9%)	107 (57.2%)	
Male	53 (51.5%)	27 (32.1%)	80 (42.8%)	
<b>Qualification</b>				0.646
Under graduation	25 (24.3%)	18 (21.4%)	43 (23.0%)	

*Continued on next page*

*Table 1 continued*

Post-graduation and other Fellowship/ specialization	78 (75.7%)	66 (78.6%)	144 (77.0%)	
<b>Experience</b>				< 0.001
Mean (SD)	14.117 (12.347)	6.771 (9.286)	10.817 (11.641)	
<b>Setup</b>				0.008
1. Rural	21 (20.4%)	32 (38.1%)	53 (28.3%)	
2. Urban	82 (79.6%)	52 (61.9%)	134 (71.7%)	
<b>Any ailments</b>				0.011
1. Yes	19 (18.4%)	5 (6.0%)	24 (12.8%)	
2. No	84 (81.6%)	79 (94.0%)	163 (87.2%)	

p-values are for the Chi Square test for independence.

### 3.2 Reliability of the KAP tool

The overall reliability of the KAP tool, Cronbach’s alpha, was 0.95. For the knowledge domain, it was 0.87, 0.93 for attitude, and 0.86 for practice domains, respectively. This shows that the KAP tool and its sub-domains had high internal consistency.

### 3.3 Interpretation of results

- **Demography**

Highlighting some of the salient features in demography, there was a significant difference in the gender, where female participation was more in AYUSH stream compared to allopathy. Also, allopathy physicians’ mean age was significantly more than AYUSH physicians. There was no significant difference in the qualification of physicians of both the streams, but experience was significantly more for allopathy physicians. Though physicians of both the streams practiced more in urban areas, AYUSH physicians were relatively more in rural areas compared to allopathy physicians. When asked about their ailments, majority of them did not have any ailments, however, allopathy physicians were more among those who had reported some ailments.

**Table 2. Knowledge, attitude, practice and Autonomy, competence and relatedness domains of allopathic and AYUSH practitioners**

Description	KAP Domain /SDT Domain	Allopathy (n=103)			AYUSH (n=84)			$\chi^2$ test p value
		Disagree	Neutral	Agree	Disagree	Neutral	Agree	
I have the freedom to prescribe Yoga as a therapy to my patients in my workplace	Knowledge/ Autonomy	6 (5.8%)	16 (15.5%)	81 (78.6%)	1 (1.2%)	7 (8.3%)	76 (90.5%)	0.068
I have good knowledge of uses of different asanas (physical postures), pranayama (breathing practices), kriyas (cleansing practices), and dhyana (meditation) for therapeutic purpose	Knowledge/ Competence	35 (34%)	23 (22.3%)	45 (43.7%)	3 (3.6%)	7 (8.3%)	74 (88.1%)	<0.001
I am aware of the evidence based therapeutic benefits of yoga as presented in the scientific literature	Knowledge/ Competence	13 (12.6%)	25 (24.3%)	65 (63.1%)	3 (3.6%)	7 (8.3%)	74 (88.1%)	0.001
I am aware of the various yoga modules standardized and recommended by the Ministry of AYUSH	Knowledge/ Competence	36 (35%)	30 (29.1%)	37 (35.9%)	4 (4.8%)	8 (9.5%)	72 (85.7%)	<0.001

*Continued on next page*

*Table 2 continued*

I am aware of adverse effects and its management during the practice of yoga	Knowledge/ Competence	38 (36.9%)	30 (29.1%)	35 (34%)	5 (6%)	8 (9.5%)	71 (84.5%)	<0.001
Yoga can be incorporated as a course in school and medical education	Knowledge/ Relatedness	7 (6.8%)	13 (12.6%)	83 (80.6%)	3 (3.6%)	5 (6%)	76 (90.5%)	0.168
Yoga is a sustainable means to be healthy at physical, mental, social, vocational, cultural and spiritual dimensions	Knowledge/ Relatedness	7 (6.8%)	10 (9.7%)	86 (83.5%)	1 (1.2%)	2 (2.4%)	81 (96.4%)	0.017
The scope of integrating yoga into clinical practice is limited by existing policies at the workplace	Attitude/ Autonomy	20 (19.4%)	24 (23.3%)	59 (57.3%)	9 (10.7%)	17 (20.2%)	58 (69%)	0.175
The existing evidence based scientific literature in yoga is supportive for clinical practices	Attitude/ Competence	12 (11.7%)	33 (32%)	58 (56.3%)	4 (4.8%)	9 (10.7%)	71 (84.5%)	<0.001
Yoga can be preventive therapy	Attitude/ Competence	6 (5.8%)	11 (10.7%)	86 (83.5%)	1 (1.2%)	4 (4.8%)	79 (94%)	0.072
Yoga can be rehabilitative therapy	Attitude/ Competence	6 (5.8%)	9 (8.7%)	88 (85.4%)	1 (1.2%)	2 (2.4%)	81 (96.4%)	0.040
Yoga can be curative therapy	Attitude/ Competence	17 (16.5%)	32 (31.1%)	54 (52.4%)	3 (3.6%)	10 (11.9%)	71 (84.5%)	<0.001

**Table 3. Knowledge, attitude, practice and Autonomy, competence and relatedness domains of allopathic and AYUSH practitioners**

Description	KAP Domain/ SDT Domain	Allopathy (n=103)	AYUSH (n=84)	$\chi^2$ test p value	Description	KAP Domain/ SDT Domain	Allopathy (n=103)	AYUSH (n=84)
Long term yoga practices can bring lasting physiological changes in body	Attitude/ Competence	4 (3.9%)	8 (7.8%)	91 (88.3%)	1 (1.2%)	5 (6%)	78 (92.9%)	0.454
Long term yoga practices can bring lasting psychological changes in a person	Attitude/ Competence	6 (5.8%)	9 (8.7%)	88 (85.4%)	0 (0%)	2 (2.4%)	82 (97.6%)	0.012
Yoga can be a cost-effective solution for managing common infectious and non-infectious diseases	Attitude/ Competence	23 (22.3%)	29 (28.2%)	51 (49.5%)	10 (11.9%)	7 (8.3%)	67 (79.8%)	<0.001
Yoga can be taught effectively through online mode	Attitude/ Competence	20 (19.4%)	33 (32%)	50 (48.5%)	21 (25%)	36 (42.9%)	27 (32.1%)	0.076
Yoga can be effectively integrated into the clinical practice	Attitude/ Competence	11 (10.7%)	18 (17.5%)	74 (71.8%)	5 (6%)	2 (2.4%)	77 (91.7%)	0.001

*Continued on next page*

Table 3 continued

I consider integrating yoga into the clinical practice will benefit patients	Attitude/ Relatedness	6 (5.8%)	21 (20.4%)	76 (73.8%)	2 (2.4%)	6 (7.1%)	76 (90.5%)	0.014
Yoga should be incorporated as a national public health program to combat various psychosomatic disorders	Attitude/ Relatedness	8 (7.8%)	14 (13.6%)	81 (78.6%)	2 (2.4%)	6 (7.1%)	76 (90.5%)	0.079
Whenever there is a need I refer my patients to practice yoga for therapeutic benefits	Practice/ Autonomy	15 (14.6%)	29 (28.2%)	59 (57.3%)	3 (3.6%)	3 (3.6%)	78 (92.9%)	<0.001
I practice Yoga regularly	Practice/ Competence	34 (33%)	19 (18.4%)	50 (48.5%)	8 (9.5%)	15 (17.9%)	61 (72.6%)	<0.001
I took a structured program under the guidance of competent yoga trainers to learn about yoga	Practice/ Competence	33 (32%)	18 (17.5%)	52 (50.5%)	10 (11.9%)	12 (14.3%)	62 (73.8%)	0.002
I work with trained yoga therapists to review cases and prescribe yoga practices to patients	Practice/ Relatedness	56 (54.4%)	29 (28.2%)	18 (17.5%)	14 (16.7%)	17 (20.2%)	53 (63.1%)	<0.001

#### • KAP survey: Perception on yoga of Allopathic and AYUSH physicians

The overall results of perception of allopathy and AYUSH physicians on yoga is presented in Tables 2 and 3. In the knowledge domain of the KAP survey (questions 8-14 in the Google form), for the question, "I have the freedom to prescribe yoga as a therapy to my patients in my workplace", both allopathic and AYUSH practitioners consider themselves to have adequate knowledge and considerable professional autonomy to prescribe yoga. The lack of autonomy was reported more by allopathic than AYUSH practitioners. For the question, "I have good knowledge of uses of different asanas (physical postures), pranayama (breathing practices), kriyas (cleansing practices), and dhyana (meditation) for therapeutic purpose", and also for the question, "I am aware of the evidence based therapeutic benefits of yoga as presented in the scientific literature", AYUSH practitioners reported higher competencies than allopathy practitioners, perhaps due to their better exposure to yoga and its practices. For the question, "I am aware of the various yoga modules standardized and recommended by the Ministry of AYUSH", vast majority of the allopathic practitioner have reported that they are unaware of the standardized yoga practices that are created and made public by the AYUSH ministry. Adverse effects management is an important aspect of yoga therapy practices. For the question, "I am aware of adverse effects and its management during the practice of yoga", here again, allopathic practitioners have reported more inadequacy than AYUSH doctors. For the question, "Yoga can be incorporated as a course in school and medical education", both allopathic and AYUSH practitioners consider yoga can be introduced at the school level so that early training can be provided. Similarly, for the question, "Yoga is a sustainable means to be healthy at physical, mental, social, vocational, cultural and spiritual dimensions", both allopathic and AYUSH practitioners consider yoga as a potential means to maintain good health at various levels.

In the attitude domain of the KAP survey (questions 15-26 in the Google form), regarding supportive government policies, for the question, "The scope of integrating yoga into clinical practice is limited by existing policies at the workplace", both allopathic and AYUSH practitioners consider that existing institutional policies are barriers to effective integration of yoga into clinical practice. For the question, "The existing evidence-based scientific literature in yoga is supportive for clinical practices," compared to the AYUSH practitioners, allopathy doctors have expressed more disagreement or uncertainty about the sufficiency of existing scientific literature supporting clinical application of yoga. For the questions, "Yoga can be preventive therapy" and "Yoga can be rehabilitative therapy," AYUSH and allopathic doctors consider that yoga can be a preventive therapy. Regarding the curative potential of yoga, for the question, "Yoga can be curative therapy," more allopathic than AYUSH doctors have remarked that yoga need not achieve a curative goal in therapy. For the questions, "Long-term yoga practices can bring lasting

physiological changes in the body” and ”Long-term yoga practices can bring lasting psychological changes in a person,” both the major streams of doctors agree that long-term practice can bring long-term changes in physiological functioning. For the question, ”Yoga can be a cost-effective solution for managing common infectious and non-infectious diseases,” although the majority of people believe that yoga is a cost-effective way to treat various diseases, allopathic practitioners have expressed their disagreement with this, particularly in the case of infectious diseases, where allopathy has traditionally been considered the primary treatment option. For the question, ”Yoga can be taught effectively through online mode,” more allopathic practitioners have remarked that yoga can be effectively conveyed through online modes, whereas AYUSH practitioners have shown less agreement or uncertainty on this perspective. For the question, ”Yoga can be effectively integrated into clinical practice,” both streams of physicians agree that yoga can be integrated into clinical practice, with allopathic practitioners disagreeing slightly more than AYUSH practitioners. For the question, ”I consider integrating yoga into the clinical practice will benefit patients,” both allopathic and AYUSH doctors have opined that integrating yoga into clinical practices will benefit patients. For the question, ”Yoga should be incorporated as a national public health program to combat various psychosomatic disorders,” both allopathic and AYUSH doctors have opined that yoga can be presented as a national movement for dealing with major NCDs.

In the practice domain of the KAP survey (questions 27-30 in the Google form), for the question, ”Whenever there is a need I refer my patients to practice yoga for therapeutic benefits,” allopathic doctors have stated that they refer their patients to practice yoga to a lesser extent than AYUSH doctors do. For the question, ”I practice yoga regularly,” the majority of the medical practitioners in our survey have agreed that they practice yoga. However, non-practitioners are reported to be more common among allopathic practitioners. For the question, ”I took a structured program under the guidance of competent yoga trainers to learn about yoga,” allopathic doctors have also remarked more than AYUSH practitioners that they have not taken training from a trained institution or a trainer. For the question, ”I work with trained yoga therapists to review cases and prescribe yoga practices to patients,” integrated and team practice with yoga therapists appear to be much less common in allopathic practitioners.

- **Qualitative analysis of open-ended questions**

One of the open-ended questions asked for respondents’ perceived barriers in incorporating yoga into clinical practices. We tried to generate word cloud (Figure 1), based on the frequency of words, in order to get an overview of the barriers that were felt.

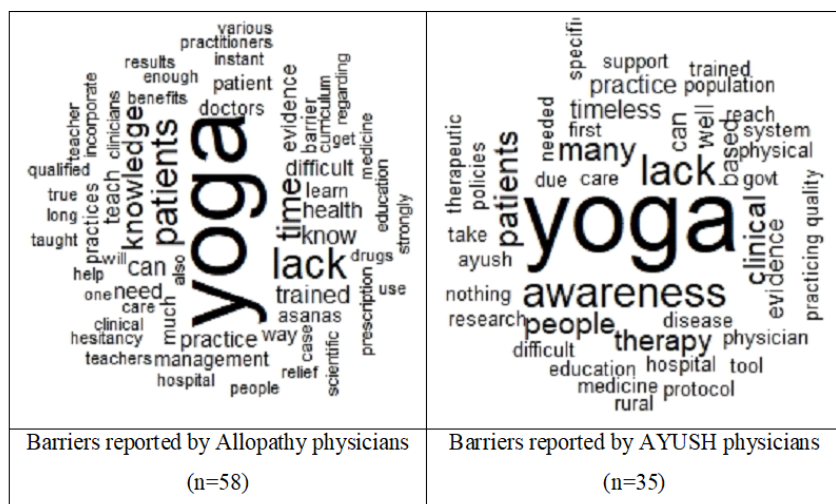


Fig 1. Word cloud of the barriers reported by allopathy and AYUSH physicians

We also manually coded the responses under various themes. The major themes that emerged from the qualitative responses to the question, ”various barriers”, were: inadequate knowledge and experience about yoga; lack of scientific evidences related to yoga relevant to clinical practices; lack of trained and certified yoga teachers; lack of patient compliance, trust, and doubt; lack of time; lack of policies, and support of government and NGOs; perception of religious association with yoga, and considering yoga pseudoscience, and lack of receptive attitude; yoga not being a part of educational curriculum, confusion about numerous styles

of yoga, lack of proper communication about yoga to the patients, lack of standardized yoga modules for specific ailments, need of support of hospital management, exclusive focus on asana component, neglecting other aspects of yoga practices; difficulty in implementation and adaptation; lack of suitable infrastructure to deliver yoga; and lack of network between clinicians and yoga experts. Majority of these dimensions were also reflected by AYUSH physicians, and they also highlighted the additional barrier as the lack of mass awareness and yoga camps to invoke the interest in yoga among the general public.

## 4 Discussion

The goal of incorporating SDT in this KAP study was to better understand the factors that enable and hinder primary health care providers from incorporating yoga into their clinical practices, as well as to uncover clues for policy implementation so that a proactive support system could be built to help primary health care providers incorporate yoga into their clinical practices. At a macro-level, various socio-cultural factors may play an important role in bringing yoga practice to life in clinical settings. However, intrinsic factors may play a catalytic role in the early stages of yoga's penetration into clinical practices.

The demographic results show a stark difference in practices in rural areas, reiterating the observed fact of the unequal distribution of medical specialists between rural and urban medical care facilities. This may be due to the shortage of manpower and delays in recruitment happening to fill in the numerous vacant posts from the department of Health & Family Welfare<sup>(9)</sup>. This further supports the observation in our survey that the respondents are majorly qualified PG doctors specializing in their respective disciplines and practicing in tertiary urban setups. This can be interpreted as a lack of opportunities for specialized doctors, specifically in rural government facilities.<sup>(10)</sup> This can also be due to parallel functioning departments of Health and Medical Education. The doctors recruited under the medical education department (DME) usually have the dual advantage of teaching and flexibility in practicing privately. In contrast, the health department doctors recruited under the National Health Mission are contractual and usually paid on a case-to-case basis. Such unequitable inter-departmental norms can lead to an uneven distribution of human resources, thereby jeopardizing the pursuit of national health goals. In this given situation, can intrinsic motivation of practitioners help bring yoga into therapeutic settings?

From the KAP survey results we can infer that the practitioners irrespective of their specializations are intrinsically motivated to understand and advocate yoga in their clinical practices. However, there are bottlenecks that became evident from this study. Allopathic practitioners have indeed exhibited interest and are intrinsically motivated to invest in obtaining additional training of yoga and are self-determined to practice it. However, extrinsic motivators such as favorable policies, and social positioning of yoga in medical practice can definitely support their efforts. The apparent passivity in implementing yoga in clinical practices can be inferred through physicians' responses from attitude and practice domains; and it may be attributed to lack of opportunities to develop competence and exercise autonomy in prescribing yoga. Similar ideas are also echoed in the qualitative reports of barriers perceived by allopathy and AYUSH physicians.

Many long-lived unconventional traditional therapies were not proven with scientific methods as they evolved much before the advent of randomized control trials, and mostly from cultures where modern medicine was not in practice. Hence, a notion prevails that these traditional therapies are not evidence-based, with the least idea about their pathophysiological mechanisms of action. Many practitioners of western medicine hesitate to prescribe yoga to their patients thinking lack of evidence-based practices in yoga<sup>(11)</sup>. Some even consider yoga to be a placebo therapy which may or may not produce desired clinical outcomes. In addition, many would have the misinterpretation as asanas or meditation alone constituting yoga in entirety. However, yoga has endured these important critiques, through numerous clinical trials and meta-studies conducted over the last few decades. With growing use of holistic and complementary medicine there is enhanced scope to integrate yoga into the existing health care practice<sup>(12)</sup>. Responses from our survey also suggested collective approval to incorporate yoga under the national programme to control psychosomatic disorders, showed greater approval from physicians of both the streams. This shows favorable environment to plan, process and implement a holistic policy on yoga. This has a direct bearing on the evidence-based research in formulating an exclusive public health policy for yoga, within the objective of mainstreaming of AYUSH under National Health Mission (NHM). In our study, physicians of both the streams have strongly opined that yoga should be introduced at the school and college levels, and this approach could be a sustainable solution for future health care needs. Currently, there is minimal scope for studying the optimal factors favoring the wellness of individuals, preventing them from falling ill. There is also no training given during the medical school on inculcating practical resilience and coping skills to handle different kinds of stresses owing to their vocational responsibility<sup>(13)</sup>. This came up as increased number of suicides among doctors and front-line warriors during the recent COVID pandemic<sup>(14,15)</sup>. All these instances of emotional stress, work pressure and vocational concerns<sup>(16)</sup> emphasize more than ever the need to adapt yoga as a curriculum and practice in all medical schools<sup>(14)</sup>.

Earlier studies have shown conditions supportive of autonomy and competence like cordial work and learning ambiance to be facilitative of activation and sustenance of self-initiated interventions<sup>(17)</sup>. Acquisition and regulation of the non-intrinsically



motivated health behaviors can be achieved by creating external contextual factors which promote the satisfaction of their individual and collective needs. In a KAP study conducted on patients about general awareness about yoga, it was found that 90% were aware of yoga however, only 22% practiced yoga and others could not practice due to lack of knowledge and time<sup>(18)</sup>. Hence, policies should focus on providing extrinsic support to learn and practice yoga. The enhanced performance, well being and mental health are some of the broader long-term goals likely to be obtained by assimilation and changing to yogic lifestyles.

Establishing evidence-based policies is the key in implementation of health interventions. Transformation in health behaviors results from a complex interaction between behavioral determinants and higher-level environmental and policy conditions<sup>(19)</sup>. The ability to formulate, process and assess health promotion policies is recommended but sparsely achieved due to limited evidence, lack of initiative, challenges in internalization and excessive control. The Ottawa Charter for Health Promotion highlights the importance of amicable atmosphere, supportive environments, reorientation of health services enabling communities to navigate through the process of making healthier choices<sup>(20)</sup>. The intrinsic motivation and commitment to the initiated activity captured through the SDT variables in the physicians in this survey may be considered as strong predictors for sustained behavioral transformation in patients. Physicians can better educate and motivate their patients if they understand the patients' thinking and perceived benefits, which will help in bringing long term changes in health behavior of patients<sup>(21)</sup>.

Highlighting the strength of this study, for the first time we tried to understand the intrinsic motivation of both allopathy and AYUSH physicians on incorporating yoga in clinical practices, based on the SDT framework. We adopted appropriate sampling technique and adequate sample size for the study, along with a reliable survey tool. Despite these, there are a few limitations in our study. In the demographic profile, there were significant differences between the allopathy and AYUSH streams, on the variables: age, gender, experience, setup, and presence of ailments. Some of these aspects of demographic profile might have influenced the study results. In future studies, more balance design based on these factors could be considered. As our study had a cross-sectional survey design, we could not attribute any causal relation. Owing to this design limitation, statistical controlling of these demographic variables was not attempted, which can be considered in future studies. Finally, as our study setup was restricted to one of the states in India, we cannot attribute wider generalizability of study results. More representative samples can be considered across the country in future studies. Despite these limitations, this research work was able to provide useful insights for designing similar studies in the future.

#### 4.1 Policy recommendation

For a successful implementation of any public health policy, understanding underlying barriers is very essential. This study has helped to understand certain intrinsic and extrinsic factors that are determinants of effective incorporation of yoga in clinical practices<sup>(22)</sup>. As a way forward, we present the following policy recommendation to incorporate yoga into clinical practices:

1. Conduct intense training programs and CMEs for doctors so that they can formally learn the basics of yoga therapy.
2. Educational yoga institutes can come up with flexible yoga programs specially catering to the needs of practicing doctors.
3. National-level policy reforms are needed to incentivize doctors to learn and incorporate yoga into their clinical practices.
4. Individual health institutions should have congenial facility and space to practice yoga within the workplace, and institutional policies must proactively support the practice of yoga for individuals' health benefits.
5. Organize interdisciplinary, dialogues, workshops, and conferences to talk about the integration of yoga into mainstream health practice.
6. Attempt to mainstream yoga through the already existing National programme for control of non-communicable diseases.
7. Promote inter-departmental coordination and support between departments of medical education, health, and other relevant departments, and attempt to introduce yoga as a part of the national health mission.
8. Ministry of AYUSH should promote the dissemination of yoga-related literature having high strength of evidence.
9. More research funding should be supported by both mainstream health and AYUSH ministries to understand the mechanics and application of yoga for therapeutic purposes.
10. Yoga can be introduced in schools and other health educational institutes in a secular way.

### 5 Conclusion

As yoga is emerging as an important evidence-based clinical therapy, its potential should be harnessed by all possible means. This will hugely impact the country's total annual health expenditures, especially on NCDs. Thought physicians of both allopathy

and AYUSH streams are equally willing to incorporate yoga into their clinical practices, lack of knowledge, training, and time impedes their intention to incorporate yoga in their practice. Apart from these intrinsic barriers, government policies can also help create an encouraging extrinsic ambiance. Until such national level policy implementation happens, we suggest encouraging physicians to incorporate yoga in clinical practices, after duly empowering them.

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## 7 Data availability

The raw data and the R analysis scripts used in this study can be downloaded from the Open Science Framework link: [https://osf.io/rv4h8/?view\\_only=d6bef1021fbf4ba782b6385d562e15d4](https://osf.io/rv4h8/?view_only=d6bef1021fbf4ba782b6385d562e15d4)

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