Original Research

The Indonesian Journal of Public Health
Vol 19. No. 1 April 2024
p- ISSN 1829-7005 e- ISSN 2540-8836

YOGA ADOPTION INTENTIONS AMONGST UNIVERSITY STUDENTS: VARIABLES AND LINKAGES

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ABSTRACT

Introduction: Compared to earlier times, university students are showing low physical activity levels. Compared to university students in the USA, students at Indian higher education institutions are 30% less physically active. The habits and beliefs formed at this stage of life are expected to have a long-term influence. Yoga is considered an alternative therapy effective in improving physical and mental health. Assessing the factors influencing university students' yoga adoption intentions is essential. **Aims:** To evaluate the selected university students' physical activity level and the mediating role of cues to action. **Methods:** The research design is cross-sectional and causal. The response of 120 university students was collected. The analysis is based on Structural Equation Modelling (SEM), and the software used includes SmartPLS and Microsoft Excel. **Results –** The study confirms the full mediation role of cue to action on the relationship between positive attitude for yoga and behavioral intentions to adopt yoga (effect = 0.179, t = 3.098, p < 0.002). Similarly, cue to action partially mediates the relationship between friend's support for yoga and behavioral intentions to adopt yoga (effect = 0.102, t = 2.34, p < 0.019). **Conclusion:** The university administrators should increase the cue to action for adopting health promotion behavior, including yoga at all levels, i.e., individual, relationships, community, social and policy making. To begin with, interventions such as developing educational videos, mandatory health promotion courses, and a buddy system can be started.

Keywords: Physical activity, Yoga, Health belief model, Socio-Ecological model, Positive attitude.

INTRODUCTION

Physical inactiveness is the major predictor of chronic diseases across the globe. Physical inactive behavior can be seen at every stage of life irrespective of age, gender, and ethnicity. In comparison to their rural counterparts, Indian urban elderly are more physically inactive and thus experience higher rates of hypertension, obesity, and diabetes (Jana & Chattopadhyay, 2022). There are various transitions in life one has to go through. Higher education is one such transition, where students are expected to give importance to studies so that they can build a good career. University students allocate more time to curricular, co-curricular, and extracurricular activities, limiting their leisure time. However, students always have a choice to utilize the available time by indulging in physical activities including sports . According to a study, the proportion of physically inactive students in universities ranged 22 to 81% in various countries (Abrantes et al., 2022; Norman et

Cite this as: Patil,N., Dubbala,V., Pote, S., Garimella,S., Yeravdekar,R and Singh, A, (2024). Yoga Adoption Intentions Amongst University Students: Variables and Linkages. The Indonesian Journal of Public Health, 19(1), 44-56. https://doi.org/10.20473/Ijph.v19i1.2023.44-56

al., 2020)). The lack of physical activity is regarded as the foremost public health concern of the 21st century (Blair, 2009), and lack of physical inactivity is associated with the risk of coronary heart disease and stroke, diabetes, hypertension, mental health issues, and cancer (Khera & Sharma, 2012). In addition to physical inactivity, other behavioral risk factors associated with chronic diseases include inadequate sleep, unhealthy dietary habits, poor mental health, substance abuse, unhealthy relationships, and unsafe sexual practices (Rhodes et al., 2016). Even though the physical inactivity level in Indian university students (11% males, 17.3% females) is lower than in the United States of America (40% males and 50% females) (Rhodes et al., 2016); furthermore, another study in 2014 highlighted that 54.4% were physically inactive, and the top three states with the highest physically inactive behavior included Chandigarh (66.8%), Tamilnadu (60.0%), Maharasthra (55.2%), and Jharkhand (34.9%) (Anjana et al., 2014). Additionally, the other predictors of low physical activity level include low educational status, low knowledge score, female, and unemployment (Chowdhury & Chakraborty, 2017). Chowdhury and Chakraborty (2017) have also highlighted that students who have undetaken two physcial education classes per week had low chances of developing a sedantary behavior in and out of school.

According to the World Health Organization (WHO), physical activity is any activity that involves the use of skeletal muscles and results in energy expenditure. This includes movement during leisure time, transportation, or work-related activities. Both moderate and vigorous physical activity can improve overall health. The WHO recommends that adults between the ages of 18 and 65 engage in at least 75-150 minutes of vigorous-intensity aerobic physical activity per week (World Health Organization, 2020).

Yoga is considered as an alternative therapy based on awareness of posture and respiration (Erdoğan Yüce & Muz, 2020). Yoga involves a series of movements that range from moderate to intense, incorporating elements of balance and muscle strength. It also includes meditation, deep breathing, and relaxation techniques. (Noradechanunt et al., 2017). The practice of yoga has an impact on physical health by improving lung capacity, cardiorespiratory endurance, and muscle strength (Telles et al., 2013). Researchers have accepted the utility of yoga for individuals with a lower level of physical activity in the area of metabolic fitness (Hagins et al., 2007). This study is conceptualized to identify the factors influencing the yoga adoption intentions in the university students of India.

The following hypothesis was formulated based on the theory of reasoned action, theory of planned behavior, and the concept of peer support. The theory of reasoned action and planned behavior highlight the influence of attitudes on behavioral intention (Ajzen et al., 1992) and states that the concept of peer support positively affects individuals' physical activity (DeMello et al., 2018). Moreover, cue to action, the fifth element of the health belief model, highlights the stimulus that urges individuals to take steps; cue to action positively affects safe food handling behavior (Hanson & Benedict, 2002). Therefore, the following hypotheses were formulated: positive attitude toward yoga (PAY) positively affects cue to action (CTA); positive attitude toward yoga (PAY) positively affects behavioral intentions (BI) to adopt yoga; Cue to action positively affects behavioral intentions to adopt yoga; Cue to action mediates the relationship between positive attitude toward yoga and behavioral intention; friends support for yoga positively affects cue to action; friends support for yoga positively affects behavioral intentions to adopt yoga; and

cue to action mediates the relationship between friends support for yoga and behavioral intentions to adopt yoga. The hypothesized model can be seen in Figure 1.

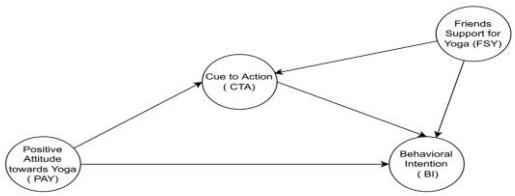

Figure 1. Hypothesized Model

METHODS

The nature of the study was descriptive, and the study participants were university students of a selected university in Pune city of Maharastra, India. The sampling frame was university students, and the sample size was 120 students. The sampling technique adopted was simple random sampling. The data collection tool was a self-administered questionnaire covering items related to beliefs about yoga, health beliefs about obesity, and physical activity. The first scale was the Beliefs About Yoga Scale (BAYS), which helps to assess an individual's beliefs in doing yoga and the factors that influence them; identifying beliefs about yoga helps in understanding how people decide to participate in yoga (Sohl et al., 2011). The second scale was the health belief scale in obesity; it measures the attitude and beliefs of an obese individual toward obesity. It addresses the effects of belief on health and the factors influencing behavioral changes. It has five dimensions, but we focused on perceived benefits, perceived barriers, and the importance of health (Saghafi-Asl et al., 2020). The third scale was the International Physical Activity Questionnaire (IPAQ), which compares physical activity levels between populations. It measures an individual's perceived self-efficacy in exercise.

We had a sample size of 120 respondents; in the questionnaire, there were 32 items in addition to the demographic and descriptive questions. The descriptive questions were about Body Mass Index (BMI), presence of pre-existing disease, medications, supplements, hours spent exercising per week, diet type, junk food, hours spent sitting, and the exercise type they are following. The scale items were measured with the help of a Likert scale measured on a five-point system, with one being strongly disagree and five being strongly agree. The questionnaire was administered with the help of Google Forms, the individual email addresses were collected centrally, and the study duration was one month, i.e., April 2022.

RESULT

Demographic Analysis

The demographic analysis of the data reveals that 34 (28.33%) respondents were males, and 86 (71.67%) were female. Moreover, 25 (20.84%) of the respondents were between the age group 18-21 years, 74 (61.67%) were between 22-26 years, and 21 (17.5%) of the respondents were between 26 years and above, respectively. The Body Mass Index (BMI) analysis reveals that 12 (10%) of the respondents were obese, and 40 (33%) were pre-obese and 63 (52%) of the respondents were in the normal category.

Similarly, 19 (15.84%) of the respondents reported a pre-existing disease and were on medications for the same. Furthermore, 23 (19.67%) reported that they were taking health supplements. Additionally, 73 (60.84%) reported doing exercise for 0-2 hours per week; 19 (15.84%) doing exercise for 2-4 hours per week, and 28 (23.34%) doing exercise for 4 or more hours per week. It shows that 62.5% of individuals eat a non-vegetarian diet, whereas 37.5% eat a vegetarian diet. Most respondents were non-vegetarian, i.e., 75 (68.3%). Around 38 (31.7%) reported consuming junk food repeatedly. Moreover, 55 (45.8%) students reported that, on average, they spend 4-6 hrs sitting.

Lastly, the students' order of preference for exercise technique was walking 69 (57.5%), Gym 36 (30%) , Yoga 12 (10%), and Zumba 3 (2.5%), see Table 1.

Table 1. Descriptive Details

Variable	Frequency	Percent %
Sex		
Male	34	28.33%
Female	86	71.67%
Age		
18-21 years	25	20.84%
22-26 years	74	61.67%
26 & above years	21	17.5%
BMI		
Moderate Thinness (16.00 – 16.99)	2	1.67%
Mild Thinness (17.00 – 18.49)	3	2.5%
Normal (18.50- 24.99)	63	52.5%
Pre-Obese (25.00- 29.99)	40	33.33%
Obese Class I (30 – 34.99)	4	3.33%
Obese Class II (35- 39.99)	6	5 %
Obese Class III (> 40.00)	2	1.67 %
Any pre-existing medical condition?		
Yes	19	15.84%
No	111	92.5%
Are you on any medication?		
Yes	19	15.84%
No	111	92.5%
Do you take any supplements?		
Yes	23	19.67%
No	97	80.34%
How many hours do you exercise in a week?		
0-2 hours	73	60.84%
2-4 hours	19	15.84%
4 & above hours	28	23.34%
What does your diet consist of?		
Vegetarian	45	37.5%
Non-vegetarian	75	62.5%
Does your diet mainly consist of junk food?		
Yes	38	31.7%
No	82	68.3%
How many hours do you spend sitting per day?		
0-2 hours	5	4.17%
2-4 hours	25	20.8%
4-6 hours	55	45.8%
6 & above hours	35	29.2%
What type of exercise do you do?		
Gym	36	30%
Yoga	12	10%
Zumba	3	2.5%
Walking	69	57.5%

On the basis of data analysis and internal consistency, reliability, and validity issues, out of thirty-two, only twelve items were retained, measuring the domains such as behavioral intention, cue to action, friend support for yoga, and positive attitude toward yoga. The Cronbach's alpha is utilized as an indicator of internal consistency, measuring the extent to which items in a particular instrument are related to each other. The

coefficient ranges from 0.0 to 1.0, with a higher correlation indicating better internal consistency among the items (Adamson & Prion, 2013). The Cronbach's alpha value greater than 0.70 is considered an acceptable measure of internal consistency. The Cronbach's alpha of the behavioral intention (0.75), cue to action (0.74), friend's support for yoga (0.73), and positive attitude toward yoga (0.74) was more than the cut-off value of 0.70, thus ensuring the internal reliability, see Table 2.

The average variance extracted (AVE) is a measure of convergent validity, which assesses the extent to which a latent construct accounts for the variance in its indicators. An AVE score of 0.5 or greater is considered acceptable, indicating that the construct explains 50% or more of the variance in the indicators used to form the construct (Hair Jr et al., 2021). The AVE values of the behavioral intention (0.57), cue to action (0.65), friend's support for yoga (0.79), and positive attitude toward yoga (0.66) were more than the cut-off value of 0.50, thus ensuring convergent validity. See Table 2.

Table 2. Cronbach's alpha, Average Variance Extracted: Internal Consistency and Convergent Validity

Constructs	**Cronbach's alpha**	**rho_A**	**Composite reliability**	**Average variance extracted**
Behavioral intention	0.751	0.765	0.842	0.573
Cue to action	0.744	0.829	0.849	0.656
Friends support for yoga	0.737	0.738	0.884	0.792
Positive attitude toward yoga	0.749	0.754	0.754	0.668

Discriminant validity is used to evaluate how distinct a construct is from other constructs. One common method for assessing discriminant validity is the heterotrait-monotrait (HTMT) ratio, which is considered a reliable way to measure the degree of differentiation between constructs. The threshold value of HTMT ratio is 0.9; a value higher than 0.90 denotes the absence of discriminant validity (Hair Jr et al., 2021). The highest HTMT ratio noted in our study was between "cue to action" and "behavioral intention," i.e., 0.66, lower than the threshold value of 0.9, thus ensuring discriminant validity. See Table 3 and Figure 1.

Table 3. Heterotrait–monotrait Ratio : Discriminant Validity

Constructs	**Behavioral intention**	**Cue to action**	**Friends support for yoga**
Behavioral intention			
Cue to action	0.668		
Friends support for yoga	0.380	0.276	
Positive attitude toward yoga	0.318	0.430	0.130

The direct effect of cue to action on behavioral intention was found to be significant (effect = 0.46, t = 4.37, p < 0.01). The association between friend's support for yoga and behavioral intention was found to be significant (effect = 0.19, t = 2.19, p < 0.01). The association between friends support for yoga and cue to action was found to be significant (effect = 0.220, t = 3.03, p < 0.01). Similarly, the association between positive attitude toward yoga and cue to action was found to be not significant (effect = 0.079, t = 0.877, p < 0.38). The association between positive attitude for yoga and behavioral intention was found to be significant (effect = 0.38, t = 4.33, p < 0.01). Thus the hypotheses H1, H2, H3, and H5 were accepted. See Table 4.

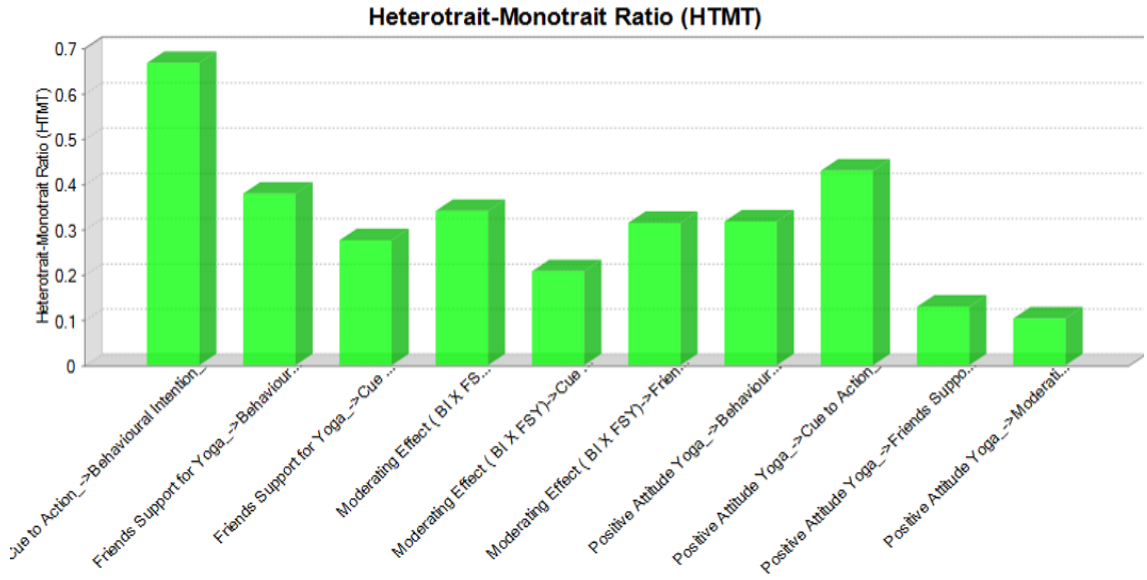

Figure 2. Heterotrait - Monotrait Ratio (HTMT)

Table 4. Hypothesis Testing and Path Coefficients

Direct Effects	**Original Sample**	**Sample Mean**	**Standard Deviation**	**T statistics**	**P value**
Cue to action → Behavioral Intention (H1)	0.465	0.477	0.106	4.37	0.00
Friends support for Yoga → Behavioral Intention (H2)	0.190	0.189	0.086	2.197	0.028
Friends support for Yoga → Cue to action (H3)	0.220	0.222	0.072	3.034	0.003
Positive Attitude toward Yoga → Behavioral intentions (H4)	0.079	0.084	0.090	0.877	0.381
Positive Attitude toward Yoga → Cue to action (H5)	0.385	0.398	0.089	4.339	0.000
Indirect Effects					

Direct Effects	**Original Sample**	**Sample Mean**	**Standard Deviation**	**T statistics**	**P value**
Positive attitude toward yoga → Cue to action → Behavioral intention (H6)	0.179	0.191	0.058	3.098	0.002
Friends support for yoga → Cue to action → Behavioral intention (H7)	0.102	0.106	0.044	2.348	0.019

Testing for mediation effect

The direct effect of positive attitude for yoga on behavioral intention is not significant (effect = 0.079, t = 0.877, p < 0.38), whereas the indirect effect of cue to action on the relationship between positive attitude for yoga and behavioral intention is found to be significant (effect = 0.179, t = 3.098, p < 0.002), thus showing a case of full mediation. Similarly, the effect of friends support for yoga on behavioral intentions to adopt yoga is significant (effect = 0.19, t = 2.19, p < 0.01) and the indirect effect of cue to action on the relationship between friend's support for yoga and behavioral intentions to adopt yoga is statistically significant (effect = 0.102, t = 2.34, p < 0.019); which makes it a case of partial mediation (Demming et al., 2017). See figure 3.

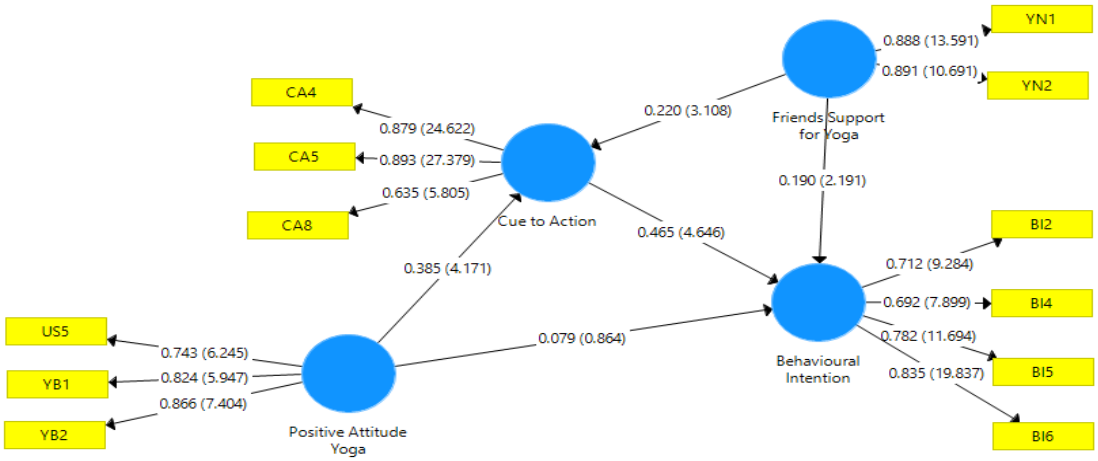

Figure 3. Path Model

DISCUSSION

The prevalence of obesity at 10% in this study corresponds to earlier studies where the global prevalence of obesity was noted as 11% (Genc & Yigitbas, 2021) and a study done in Tamil Nadu state has noted an obesity prevalence of 21.5% (Premlal et al., 2016) in which college going students were obese and overweight. However, almost 33% of the respondents in this study were pre-obese and had adequate health promoting interventions including yoga. Almost 15.84% respondents have reported suffering from pre-existing diseases and were on medications, thus acting as a cue to action to other students. Moreover, walking as an exercise option was the first preference with 57.5% followed by Gym 30%, Yoga

10% and Zumba 2.5%. This is in contrast with a survey which presents that 30% of Indian youths prefer yoga. During COVID-19. because of inability to access gyms people have resorted to inbound physical activities and yoga (Kaur et al., 2020). The reason for walking as a preferred option could be the positive benefits of exercise in green environment, including attentional benefits and mental restoration (Wang et al., 2021).. Therefore, it can be postulated that yoga if done in natural environment can harness the benefits of green exercise (Wang et al., 2021) and could witness increased takers from university-going students.

The current work investigated the effect of cue to action on the relationship between a positive attitude toward yoga and behavioral intentions to adopt yoga. Furthermore, the effect of cue to action is also assessed for the relationship between friend's support for yoga and behavioral intentions to adopt yoga. The results have shown that cue to action fully mediates the relationship between a positive attitude for yoga and behavioral intentions to adopt yoga; implying that a positive attitude for yoga is insufficient to encourage university students' behavioral intentions. However, if university students are exposed to good cues to actions, it will likely improve behavioral intentions. Cue to action includes reading related articles in books and magazines and obtaining health information from television, YouTube, and public service announcements. However, reading relevant health information in books and magazines is considered the strongest cue to action (Chou & Wister, 2005). Cue to action also includes individuals suffering from ailments, such as a friend or relative suffering from deadly diseases like cancer, which will prompt individuals to abstain from consuming tobacco. The university management can develop newsletters, health promotion videos, and infographics to increase the cue to action so that the university student's probability of coming across cue to action increases. The present finding that a cue to action fully mediated the relationship is consistent with previous research, which demonstrated that only the cue to action was significantly associated with COVID-19 vaccination intentions (Wong et al., 2022). However, the lack of statistically significant impact of a positive attitude toward yoga on behavioral intention contrasts with previous research, which found that a positive attitude toward hearing aids was the most influential factor in determining hearing aid adoption (Meyer et al., 2014). This difference can be due to the urgency and critical nature of the problem, as obesity is not considered an immediate and high-impact problem in the short term; the hearing limitations could affect an individual's day-to-day functioning. Similarly, the partial mediation of cue to action on the relationship between friend's support for yoga and behavioral intention to adopt yoga highlights the crucial role of social support. To increase the physical activity levels of students, the university management could implement a buddy system. The buddy system involves small groups of two or three individuals who support each other in adhering to a physical activity program that promotes better health (McAuley et al., 1994). The buddy program should have a component of a "buddy binder," i.e., students have an option to choose their buddies; similarly, the duration of the program should be long enough to develop social cohesion, and the members of the buddy groups should be a minimum of three (Cholewa & Irwin, 2008). The effectiveness of the buddy system, when combined with other additional social events in increasing the university students' physical activity is widely acknowledged (Tucker & Irwin, 2016). The effect of a friend's support for yoga gets enhanced in the presence of a cue to action and increases the likelihood of yoga adoption behavioral intentions.

The results obtained in this study also correlate to the socio-ecological model

(Kilanowski, 2017) where the positive attitude toward yoga is at the individual level, the friend's support for yoga is at the relationship level, and the cue to action, which can be both internal and external (Chang et al., 2020), is at all the levels, i.e., individual, relationship, community, institutional and policy level. Higher educational institutions (HEIs) should take policy interventions to encourage health promotion (Gore et al., 2021) while ensuring the presence of cues to action at all levels of the socio-ecological model of health. However, university administrators should be mindful of the issues like time constraints, following their own exercise programs, and schedule conflicts, which could act as barriers to adopting health promotion programs (Leininger et al., 2015). Empirically, health promotion interventions enhance physical activity levels (Heeren et al., 2018).

CONCLUSION

This study concludes that a positive attitude to yoga in the presence of a cue to action activates the behavioral intentions to adopt yoga. Similarly, the friend's support of yoga and cue to action influences the behavioral intentions to adopt yoga. Higher educational institutions should encourage the adoption of yoga among students to improve their physical and mental health. The buddy system and ensuring cues to action to adopt health-promoting behavior at all levels can be crucial in increasing behavioral intentions to adopt yoga.

Limitations

The study is not free from limitations. Firstly, the sample only consisted of post-graduate university students, which limits the generalizability of the findings to other young adults with varying educational backgrounds. Future studies should include more diverse samples from the Indian population. Secondly, the physical activity levels were assessed using self-reported measures, which are susceptible to biases such as over-reporting. Additionally, this study used a cross-sectional design, which precludes the ability to infer causality. To address this limitation, longitudinal studies should be conducted to examine the effects of these factors over time and their impact on the adoption and maintenance of physical activity (Dedeli & Fadiloglu, 2011; Essiet et al., 2017).

Future scope of research

Despite these limitations, this study can be used as a reference to assess interactions between community, relationship, physical activity, and yoga factors. However, further research is required to identify more factors influencing yoga participation and physical activity among Indian university students. This would help to develop further strategies that take these factors into account which will influence the participation among university students. Emphasis must be given to implementing interventions to sustain sufficient physical and yoga activity levels. Understanding beliefs about yoga and physical activity will lead to both promotion and implementation of interventions that will potentially benefit a larger portion of the population.

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