Indian Journal of Traditional Knowledge
Vol. 16 (Suppl), June 2017, pp. S 81-S 87

Commitment and motivation in practicing *yoga* among adults in Kuching, Sarawak

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Received 03 August 2016, revised 15 November 2016

This study aims to identify the motivational factors that influence *yogis* and their commitment in *yoga* in Kuching. A cross-sectional study was conducted using the Self-Motivation Scale (SMS 28) and Sport Commitment questionnaires. A total of 109 respondents participated with a mean age of 40.1 years (SD = 10.16), mean Body Mass Index (BMI) of 23.1 kg/m^2 (SD = 3.98). There were more female respondents, accounting for 86.2 % of total participation. More than 40 % of the participants were Hatha *yoga* practitioners. Those who were above 40 years of age were found to have higher intrinsic motivation (mean = 4.3, SD = 0.55) and extrinsic motivation (mean = 3.9, SD = 0.65) as compared to the younger age group ($p < 0.05$). Similarly, those who practiced *yoga* for more than 5 yrs were found to have higher extrinsic motivation (mean = 4.0, SD = 0.78) compared to those who practiced for a shorter duration ($p < 0.05$). This survey found that intrinsic motivation remains the highest motivation in practicing *yoga*, indicating its potential role in helping *yoga* practitioners in sustaining their practices. Both intrinsic motivation and extrinsic motivation were found to be associated with sport commitment. More promotion on the goodness of *yoga* should be carried out to encourage all segments of society regardless of age, gender and races into practicing *yoga*.

Keyword: *Yoga*, Motivation, Commitment, Nutritional status, *Yoga* practice
IPC Int. Cl.[8]: A23L, A23L 33/00, A23L 33/20, A23L 33/21

Over the years, *yoga* has become one of the popular physical activities because of its effectiveness in achieving optimum health. It focuses on easy and low-impact movement that helps to rejuvenate body and mind to reach a deeper sense of spirituality, as well as, improvement in mood and quality of life. Using physical postures or Asanas as the main training point, *yoga* enhances muscular strength and body flexibility, promotes and improves respiratory and cardiovascular function, promotes recovery of mental illnesses such as addiction, stress, depression, anxiety[1]. Usually, one of the main objectives of being physically active is to have a direct effect on physical health in the form of weight loss or physical sculpting. However, in *yoga*, practitioners often opt for better body posture, joint mobility, muscle flexibility and mental relaxation[2]. The motivation in pursuing these goals usually involves the use of available resources of time, talent, money, and energy to practice and perform. This sphere of motivation is commonly divided into extrinsic motivation, intrinsic motivation and amotivation[3]. Compared to extrinsic motivation, intrinsic motivation is a higher form of motivation that gives satisfaction and pleasure through exploration and curiosity. On the other hand, amotivation refers to the lack of correspondence between an action and the results of the action that leads to termination of such action[3]. According to self-determination theory[3], the resulting types of motivation, whether intrinsic, extrinsic and amotivation will lead to positive and negative consequences. If the motivation is intrinsic in nature, positive consequences are more likely to be obtained. This is evidenced in a study on young soccer players where intrinsic motivation was found to be predominant among the players in the most important and challenging competition[4]. The study further confirmed that the motivation for participation is manifested from the way players make their activity choices, their amount of effort and perseverance in times of obstacles and failure. Motivation also depends on one's commitment to physical activity. As indicated by the theory of Sport Commitment, the level of commitment in an individual can influence the individuals' decision to maintain their participation in the physical activities[5]. Although the past literature has indicated that intrinsic motivation ranks the

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highest for *yoga* due to its ability to offer health and wellbeing to the practitioners, this study aims to study the way in which *yoga* practitioners are motivated and how it affects their commitment in practicing it. In addition, it also aims to determine the association between socio-demographics, *yoga* practicing patterns, nutritional status, and, motivation and commitment to *yoga* practice. Furthermore, *yoga* being the newest interest among fitness practitioners in Kuching, Sarawak, the findings of this study will provide an insight as to how *yoga* is being accepted among other fitness disciplines. This will eventually help determine the practitioners' choices in maintaining their interest in this physical activity.

Methodology

This research was a cross-sectional study conducted among *yoga* practitioners in Kuching during a period of 5 months from November 2015 to March 2016. Kuching is the biggest capital city of Sarawak on the Island of Borneo with an estimated population of 617,887 people[6]. Based on an informal survey, there are nine yoga centers operating in Kuching with a minimum of 200 practitioners. The sample size was calculated using single mean equation:

$$n = \left[\left(\frac{z\sigma}{N}\right)^2\right]^7$$

Where Z = 1.96,σ = population standard deviasion, E = margin of Error.

based on the mean scores of SMS26 individual constructs in Philips[8], the standard deviation of 1.06 was chosen, together with the anticipated true mean within 0.2 of 95 % confidence; the minimum sample size required was 135 (10 % attrition rate).

The inclusion criteria for participation were, *yoga* practitioners being 18 years or above and of practicing *yoga* regularly for more than 6 months. Data was collected using self-administered questionnaire that consists of respondents' socio-demographic information, *yoga* practicing profile, the Sport Motivation Scale (SMS28)[9], Sport Commitment questionnaire[10]. As in sport, motivation is also highly critical to the commitment and practicing of *yoga*, hence the Sport Motivation Scale SMS28 and The Sport Commitment were adopted for the study. The Sport Motivation Scale SMS28, assesses 7 different constructs that measure the motivating factors to sports:

1) Intrinsic motivation to know; 2) Intrinsic motivation to accomplish; 3) Intrinsic motivation to experience stimulation; 4) Extrinsic motivation to identify; 5) Extrinsic motivation to introject; 6) Extrinsic motivation for external regulation; 7) Amotivation. The Sport Commitment consists of four questions assessing the desire and resolve to continue participation in a physical activity.

Prior to the date of data collection, the researchers visited all the *yoga* centers and asked for appointments for data collection. Once the date was confirmed, the eligible respondents gathered at the training venue after their lesson, where the researchers distributed the self administered questionnaire, followed by anthropometric measurements of weight, height, body fat and visceral fat. Weight, body fat and visceral fat were measured using OMRON Karada Scan HBF375 based on bioelectrical impedance (BI) method[11]. Height was measured using SECA stadiometer 213. Classification of BMI is based on WHO[12], where BMI less than 18.5 kg/m^2 is underweight, 18.5 kg/m^2 to less than 25 kg/m^2 is normal, 25 kg/m^2 is overweight and 30 kg/m^2 and above is obese. Classification of body fat is based on Gallagher *et al.*[13], and gives specifics based on gender and age. Visceral fat was classified based on OMRON instruction manual where 1-9 is normal, 10-14 is high and above 14 is very high. Ethical approval was obtained from the Medical and Ethical Committee of Universiti Malaysia Sarawak (UNIMAS/NC-21.02/03-02(65). Consent was obtained from all respondents after they were briefed on the research. Respondents were ensured the confidentiality of their personal information, and they could withdraw from the study at any time.

Data was entered and analysed using SPSS version 22.0[14]. Descriptive data and inferential statistics was carried out using $p < 0.05$ as level of significance.

Results

A total of 109 *yoga* practitioners participated in this study with the mean age of 40.1 years (SD=10.16) and the mean Body Mass Index (BMI) of 23.1 kg/m^2 (SD = 3.98). Among them, the number for the practitioners who were aged 40 and below was 56 (51.4 %) which was slightly higher than those aged more than 40. Table 1 showed that female *yoga* practitioners make up the vast majority of the total participants (86.2 %). Chinese account for most of the practitioners (90.8 %) followed by other races (6.4 %) and Malays (2.8 %). About 54.1 % of the participants were married. The numbers of employed participants were higher (88.1 %) than unemployed participants. More than 80 % of the respondents, have been practicing *yoga* for 5 years and below. Only 14.7 % of

them practised *yoga* for more than 5 years. Among the *yoga* practitioners, 41.3 % practice *Hatha yoga*, 27.5 % practice *Vinyasa yoga*, 15.6 % practice Universal *yoga*, 14.7 % practice *Yin yoga* and another 0.9 % practice other type of *yoga.* Among the reasons given (health, maintaining optimum physical condition, relaxation, weight loss, joint mobility development, breathing improvement, muscle tone, muscle flexibility and resistance development), maintaining optimum physical condition makes up the highest percentage which is 22.9 % and the least is muscle resistance development which is 2.8 %. In terms of the health status of respondents, 66.1 % of them were found to have a normal BMI while 27.5 % of them were overweight or obese. Less than half of the respondents (46.8 %) had normal body fat level. There were 35.8 % of the respondents with high body fat level while 17.4 % with very high level of body fat. The majority of the respondents (80.7 %) had a normal visceral fat level, only 19.3 % have high and very high visceral fat level. Further information on the background of the respondents is presented in Table 1.

Table 1 — Background information of the respondents (N = 109)

	n (%)	Mean (SD)
Age (year)		40.1 (10.16)
40 yrs and below	56 (51.4)	
>40 yrs	53 (48.6)	
Race		
Chinese	99 (90.8)	
Malays	3 (2.8)	
Others (including Iban, Bidayuh)	7 (6.4)	
Gender		
Female	94 (86.2)	
Male	15 (13.8)	
Marital status		
Single	50 (45.9)	
Married	59 (54.1)	
Occupation		
Working	96 (88.1)	
Non-working	13 (11.9)	
Duration of practice (Years)		35 (4.04)
5 years and below	93 (85.3)	
>5 years	16 (14.7)	
Yoga type		
Hatha	45 (41.3)	
Vinyasa	30 (27.5)	
Universal	17 (15.6)	
Yin	16 (14.7)	
Others	1 (0.9)	
Reason to practice		
Health		
Maintaining optimum physical condition	25 (22.9)	
Relaxation	20 (18.3)	
Weight loss	13 (11.9)	
Joint mobility development	12 (11.0)	
Breathing improvement	9 (8.3)	
Muscle tone	8 (7.3)	
Muscle flexibility development	6 (5.5)	
Muscle resistance development	3 (2.8)	
Social		
Spending time effectively	8 (7.3)	
Socializing	5 (4.6)	
BMI (Kg/m^2)		23.1(3.98)
Underweight	7 (6.4)	
Normal	72 (66.1)	
Overweight & Obese	30 (27.5)	
Body Fat (%)		29(5.04)
Normal	51(46.8)	
High	39 (35.8)	
Very High	19 (17.4)	
Visceral Fat (%)		6.6(7.71)
Normal	88 (80.7)	
High	15 (13.8)	
Very High	6 (5.5)	

Table 2 shows the Sport Motivation Scale (SMS28). The SMS28 assesses seven different constructs that measure the motivating factors of the *yoga* practitioner in *yoga*. Results indicated that higher mean score was found in the intrinsic form of motivation (mean = 4.2, SD = 0.65) as compared to extrinsic form of motivation (mean = 3.6, SD = 0.78). Among the intrinsic motivations, the Intrinsic Motivation To Know (mean = 4.2, SD = 0.64) acquires the highest score compared to Accomplish And To Experience Stimulation. On the other hand, among the extrinsic motivations, The Motivation To Be Introjected (mean = 3.9, SD = 0.85) obtained the highest score while the External Regulation (mean = 3.4, SD = 0.93) received the lowest. Scores for the Amotivation of the SMS28 (mean = 2.3, SD = 1.06) was the lowest. In terms of Sport Commitment scale, the score for determination to

Table 2- Sport Motivation Scale and Sport Commitment Score (N=109)

	Mean (SD)
Intrinsic motivation	4.2 (0.65)
To know	4.2 (0.64)
To accomplish	4.1 (0.69)
To experience stimulation	4.1 (0.75)
Extrinsic motivation	3.6 (0.78)
Identified	3.7 (0.87)
Introjected	3.9 (0.85)
External regulation	3.4 (0.93)
Amotivation	2.3 (1.06)
Sport Commitment (overall)	3.6 (0.78)
Dedication to practice *yoga*	3.7 (0.92)
How hard to quit *yoga*	3.5 (1.18)
Willing to do to keep practicing *yoga*	3.3 (1.12)
Determination to practice *yoga*	3.9 (0.78)

practice *yoga* is amongst the highest, while the willingness to keep practicing *yoga* is the lowest.

Table 3 shows the relationship between sport motivation and sport commitment. Based on Pearson correlation test, both intrinsic motivation and extrinsic motivation were found to be associated with sport commitment with a moderate correlation of 0.409 to 0.516 ($p < 0.01$).

Table 4 presents the analysis between socio-demographic profile, health status, type of motivation and sport commitment. Only age and duration of practice were found to be associated with motivation. Those who were above 40 years of age were found to have higher Intrinsic motivation (mean = 4.3, SD = 0.55), Extrinsic motivation (mean = 3.9, SD = 0.65) as compared to the younger age group ($p < 0.05$). Similarly, those who practiced *yoga* for more than 5 years were found to have higher Extrinsic motivation (mean = 4.0, SD = 0.78) compared to those who practiced for a shorter duration ($p < 0.05$). Other variables were found to have no significant association with motivation and sport commitment.

Table 3 — Relationship between sport motivation and sport commitment

Variable	Sport Commitment
Intrinsic motivation	0.516**
Extrinsic motivation	0.409**
Amotivation	-0.148

**significant at $p < 0.01$

Table 4- Association between socio-demographic profile, health status and type of motivation of the respondents (N = 109)

Variables	Sport commitment	Intrinsic motivation	Extrinsic motivation	Amotivation
Age in yrs				
≤ 40	3.5 (0.75)	4.0 (0.71)	3.4 (0.82)	2.2 (0.85)
> 40	3.7 (0.81)	4.3 (0.55)	3.9 (0.65)	2.5 (1.23)
p value	0.147	0.011*	0.001**	0.111
Gender				
Female	3.4 (0.86)	3.9 (0.61)	3.4 (0.80)	2.5 (1.00)
Male	3.7 (0.77)	4.2 (0.65)	3.7 (0.77)	2.3 (1.07)
p value	0.225	0.098	0.184	0.510
Occupation				
Working	3.6 (0.79)	4.1 (0.66)	3.6 (0.79)	2.2 (1.01)
Non-working	4.1 (0.13)	4.2 (0.54)	3.7 (0.83)	2.1 (0.97)
p value	0.226	0.811	0.843	0.817
Duration of practice				
≤ 5 yrs	3.6 (0.79)	4.1 (0.67)	3.6 (0.77)	2.3 (1.05)
> 5 yrs	3.9 (0.71)	4.4 (0.45)	4.0 (0.78)	2.4 (1.20)
p value	0.072	0.125	0.031*	0.806
BMI				
Underweight & normal	3.7 (0.76)	4.2 (0.62)	3.6 (0.80)	2.4 (1.05)
Overweight & obese	3.5 (0.85)	4.1 (0.73)	3.7 (0.73)	2.2 (1.11)
p value	0.293	0.564	0.746	0.374
Body fat				
Normal	3.7 (0.77)	4.2 (0.68)	3.6 (0.79)	2.3 (0.95)
High & very high	3.6 (0.80)	4.2 (0.63)	3.7 (0.77)	2.4 (1.16)
p value	0.511	0.895	0.271	0.651
Visceral fat				
Normal	3.6 (0.78)	4.2 (0.65)	3.7 (0.79)	2.4 (1.08)
High & very high	3.6 (0.80)	4.2 (0.69)	3.6 (0.75)	2.0 (0.95)
p value	0.952	0.990	0.714	0.202

*significant at $p<0.05$

Discussion

The findings of this study showed that females were more predominant in practicing *yoga* (86.2 %), consistent with studies carried out in Australia (85 %) and USA (77 %)[15]. However this finding is confined to Kuching, Sarawak. The differences could have been due to perception of men towards *yoga*, where they relate yoga to femininity with body movements that require more flexibility than strength. Although such opinions were not documented, men by nature prefer more vigorous exercises compared to women. Despite this, the proportion of women to men varied according to type of *yoga* practice. Some *yoga* practices, such as *Bikram* (hot) *Yoga*, have a higher proportion of men as compared to other types of *yoga*[15]. In terms of ethnicity, *yoga* is more popular among the Chinese (90.8 %) as compared to Malays (2.8 %) and other races including Iban and Bidayuh (6.4 %). This distribution is not uncommon because many people regard *yoga* is related to meditation that can lead to spiritual practices, which may affect their religious practise. The census survey in Australia indicated more than 60 % of *yoga* practitioners have no religious beliefs[15], indicating that the role of *yoga* is not confined to religious orientations but physical posture (asana), breathing practices (pranayama), and relaxation[16]. Among the age distribution of respondents in this study, there was an almost equal distribution of 40 years old and below with those above 40 years old. This finding is consistent with literature where majority of *yoga* practitioners are in the age group of 25-44 years old[15], with increased popularity among the younger groups. Apparently, such popularity was due to the ability of *yoga* to help younger adults in handling stress, fostering motivation, cultivating internal locus of control which promote healthy living. Like other studies, the finding of this study shows that most *yoga* practitioners were

employed (88.1 %), suggesting *yoga* appeals to those of working groups[15]. Regarding the *yoga* practicing duration, the findings showed that 85.3 % of the respondents had been practicing *yoga* for 5 years and below, while only 14.7 % of them practicing *yoga* for more than 5 years. Such differences could have been due to the influx of *yoga* centers in Kuching, Sarawak, for the past 5 years where *yoga* has gained its popularity among the people. Among the *yoga* practitioners, 41.3 % practice *Hatha Yoga*, 27.5 % practice *Vinyasa Yoga*, 15.6 % practice Universal *Yoga*, 14.7 % practice *Yin Yoga* and another 0.9 % practice other types of *yoga*. *Hatha Yoga* has gained its popularity because of its emphasis on postures, breathing techniques and meditation to promote good physical and mental well being[17]. Among the reasons for the respondents to start practicing *yoga*, Maintaining Optimum Physical Condition makes up the highest percentage (22.9 %), followed by Relaxation (18.3 %). Indeed, *yoga*'s popularity may be due in large part to its ability to produce psychophysiological changes that reduce the activity of the stress response systems and enhance self-regulation, resilience, mood, well being, and quality of life[18]. According to Park, Riley, Bedesinand Stewart[19], people are initially drawn to *yoga* for its physical aspects, such as fitness and increasing flexibility. Subsequently, many people pursue *yoga* for stress, depression, anxiety, relief, relaxation and most of all for overall general wellness[20]. The other minor health reasons to practice *yoga* in this study are weight loss, joint mobility development, breathing improvement, muscle tone, muscle flexibility and resistance development. Weight loss ranks 3rd (11.9 %) for the respondents to practice *yoga*. This can be explained by the body mass index which showed that 27.5 % of the respondents were overweight or obese. *Yoga* has been shown to be an efficacious intervention for many health conditions, including arthritis[21], metabolic syndrome[22], asthma[23], pain[24], and depression[25]. Kramer[26] stated that breath is the fuel of life. In *yoga*, it serves as a bridge between the mind and the body, since although it operates on automatic, it can also be consciously controlled. Breath is a cornerstone of the technique. Learning to use it effectively is the key to deepening the *yoga* practice, since it directly increases stretch, strength, endurance and balance. A large survey of *yoga* and meditation practitioners in Australia (n = 2567) asked about their reasons for adopting either of these practices, and reported similarly that health and fitness, and increased flexibility/muscle tone (both 71 %) were by far the most common reasons for adopting, while other commonly reported reasons were reduction of stress or anxiety (58 %), personal development (29 %), specific health or medical reason (20 %) and spiritual path (19 %)[15]. *Yoga* is a powerful therapeutic tool for correcting physical and psychological problems. It retards aging, gives strength and flexibility for other physical activities, enhances our appearance, posture, skin and muscle tone, and vitality[19].

An observational study of 15,550 adults in the US indicated that *yoga* practice was associated with positive weight control[27]. The study reported those who practice *yoga* for four or more years had a lower weight gain among those with normal BMI. In this study, in majority of the respondents who practiced *yoga* for 5 years and below, the proportion of overweight and obese was only 27.5 %, indicating there is a positive association between practicing *yoga* and reduced body weight. Although the proportion of respondents with high and very high body fat was above 50 %,-the proportion of respondents with high and very high was less than 20 %. Evidence showed that higher visceral fat is associated with higher cardiovascular risk and an increase in type 2 diabetes mellitus incidents[28].

For the motivation to practice *yoga*, based on The Sport Motivation Scale (SMS28), it is divided into three components which are intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation refers to doing something for its own purpose. When a person is intrinsically motivated, he or she will perform the behavior voluntarily, in the absence of material rewards or external constraints[29]. The sub-items under this item included *intrinsic motivation to know, accomplish and experience stimulation*. Among the three main types of motivation, *Intrinsic motivation* was ranked the highest with an overall mean score of 4.2 (SD = 0.64). This finding is consistent with Petracovschi's study[30], where he explained that the main motivation for *yoga* practitioners to practice *yoga* is wanting to know how *yoga* can further offer new things that can be learned and explored. When one engages in *yoga* practice, for many, the accomplishment can lead to pleasure and satisfaction. This is particularly true when someone tries to master advanced postures such as head and shoulder stands, or lotus position, which can also lead to injuries if not properly done. Intrinsic motivation to

experience stimulation occurs when someone engages in an activity in order to experience stimulating sensations, for example, fun and excitement.

Contrary to intrinsic motivation, extrinsic motivation pertains to a wide variety of behaviors that are engaged in as a means to an end and not for their own sake[29]. Extrinsic motivation is divided into three components which are identified, introjected and external regulation. Identified regulation is internally driven, but still focuses on a result that is external, and the participants normally identify with the activity, because it is perceived as having value. Introjective regulation had a higher score (M = 3.9, SD = 0.85) among other items of extrinsic motivation. Introjection exists when individuals feel internal pressure to participate and their behavior is driven by controlling imperatives, resulting in the engagement of activities to avoid feelings of guilt and anxiety[3]. In this case, the findings of this component are consistent with the reasons for practicing *yoga* (Table 1), where two of the main reasons were maintaining optimum physical condition and relaxation.

The mean score for amotivation was the lowest among the Sport Motivation items. As defined by Kingston *et al*.[31], amotivation is characterized by a total absence of motivation. This could have happened in a small proportion of the sample in this study, where these respondents regard *yoga* as an activity for passing time, with no specific objective or anticipated outcome. Consistent with an earlier study[4], the finding indicated intrinsic motivation shows higher correlation with sport commitment than extrinsic motivation. This further supports intrinsic motivation which derives from personal needs to be healthy, influence the commitment level in *yoga*. The results indicated those who were above 40 years of age were found to be having higher intrinsic motivation and extrinsic motivation as compared to the younger age group. There is a growing body of research into the efficacy of *yoga* practices and how it helps to relieve musculoskeletal pain, reduce mental health problems, and have a positive impact on cardiovascular diseases, which commonly happen among the elderly[16]. Also, those who practiced *yoga* for more than 5 years were found to have higher extrinsic motivation compared to those who practiced for a shorter duration. One of the possible explanations for this is that *yoga* practice gives them the satisfaction of being in a premium *yoga* lifestyle that involves designer sportswear, mats, *yoga* accessories that portray a favorable social impression, enhanced status and respect[32].

This study has a few limitations. Low response rate from male practitioners was the most obvious limitation. As *yoga* practice was more dominated by females than males, it was challenging to find and gain responses from male participants from the target population. Therefore, the results collected primarily reflected or represented the views of the females. Another limitation would be a response bias. The respondents may give answers that are socially acceptable or theoretically true rather than their true beliefs and this can affect the outcome of this study. As this research is done among *yoga* practitioners in Kuching, the findings cannot be generalized to other populations outside of Kuching. It cannot be assumed that the motivational factors influencing practitioners in Kuching are the same as elsewhere.

Yoga provides a lot of benefits to both mental and physical health. Therefore, such benefits of *yoga* should be further promoted to encourage all segments of society regardless of race, age and gender. Furthermore, intrinsic motivation that comes within an individual has better impact in sustaining sport commitment. In this case, *yoga* has proven itself as a physical activity that can help a person to gain better commitment as the practice itself is intrinsically rewarding. Malaysia, having the highest increasing trend of non-communicable disease in South East Asia, should embark onto a more extensive and intensive promotion of physical activity among her population. *Yoga* has been the most suitable physical activity for all segments of society regardless of race, age and gender, making it the perfect choice. More people, particularly males, should be encouraged to practice *yoga* as the evidence yielded from this study and other studies have suggested immense health benefits. This can help the practitioners to maintain good health and keep their body and mind fit. *Yoga* is also a very suitable activity for the elderly because *yoga* is not an aggressive physical activity. By practicing *yoga*, the older adults can improve their body-balance, and this can further prevent accidents due to lack of balance or lack of muscle strength. Thus, the public should be educated more on the benefits of practicing *yoga* as well as in creating a healthy society.

Acknowledgement

The researchers would like to thank all *yoga* centers and the participants who helped to make this study possible.

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