

# Yoga and stress management during and post COVID-19 urban lifestyle in Japan

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## ABSTRACT

When COVID-19 started spreading in Japan, the government announced national emergency in April-May, and requested people to stay inside home for a prolonged period of time. This has caused significant stress in different groups of urban residents in Japan, where close contacts were the key issue. An online survey conducted with urban residents have pointed out that 78% were under stress, and 18% were using yoga to relieve from the stress. Although the percentage of people conducting yoga was less, but they wanted to continue it even after the COVID-19 is over. With some literature review, the paper argues yoga as an effective means of stress and health management during as well post Corona time. This is especially relevant to urban lifestyle, since yoga can be done by any age group, including physically challenged people. It is argued that yoga can also release stresses in different disaster situation, especially in the evacuation centers.

**Key words:** COVID-19, yoga, stress management, urban lifestyle, healthcare

**Asian Journal of Complementary and Alternative Medicine. Volume 08 Issue 3**

**Published on:** 30/12/2020

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**Cite this article as:** Akiko Kato and Rajib Shaw. *Yoga and stress management during and post COVID-19 urban lifestyle in Japan* Asian Journal of Complementary and Alternative Medicine, Vol 8 (3), 48-54:2020.

## INTRODUCTION

In December 2019, an outbreak of coronavirus infection (COVID-19) was reported in Wuhan City, North Province, People's Republic of China, and has infected significant number of people causing death, severe health problems, impacts of economies, livelihood and lifestyles. Japan, with its close proximity to China, high volume travel between the two countries, high urban density and relatively higher percentage of aged population is considered vulnerable to this global pandemic from the initial stage [1, 2]. On April 7, 2020, the Government of Japan revised the state of emergency, judging that "a situation has occurred that could have a tremendous impact on the people's lives and the national economy due to the nationwide and rapid spread of the disease. Based on the provisions of Article 32, Paragraph 1 of the Act on Special Measures Concerning Influenza, etc." Unlike other countries, the state of emergency in Japan is not a forced lockdown, rather a request to its citizen to refrain from going out, maintaining basic social norms and protection measures, reduction of economic and social. Before calling for nation wide emergency, several prefectures including Tokyo Metropolitan Government, Hokkaido (the northern island) has declared its prefectural emergency and made the same request to its people to observe certain levels of restrictions. This was one of the first attempt in recent years that the Japanese Government

has called for national emergency due to pandemic, which is considered as a biological hazard.

In addition to the economic stagnation, more than 100 million people stayed in the home for more than a month including all ages like infants, school children, working people and the elderly. In other words, the fight against this unprecedented virus has resulted in the burden of lack of exercise and stress on healthy people, who did not have any symptoms of the virus. The stress caused by refraining from going out causes social and family problems such as domestic violence, and the increase in suicides due to financial instability is already anxious [3]. The stress and lack of exercise associated with these self-restraint from going out, often termed as "corona blue", have become a problem not only for adults who work from home, but also for children who cannot go to school, and to elderly people who cannot go to day care services.

On April 22, 2020, two weeks after the state of emergency was announced, a government expert meeting discussed measures against the new coronavirus and proposed to reduce contact with people by 80% as "situational analysis" and "proposal" [4]. The expert panel recommended 10 points for online activities for muscle training and yoga. As a result, it became a proposal to relieve the mental and physical stress using yoga that can be done online at home and maintain wellness. Different academic institutes, including Keio University has

also decided to introduce video yoga lessons as a mean to maintain the wellness of the mind and body at homes when students refrain from going out. In this way, yoga found its new niche in urban lifestyle to combat the unprecedented large-scale and long-lasting impacts of COVID-19. In addition, as we are seeing multiple waves in COVID-19 in different parts of the world, including Japan (which is under third wave from October 2020), the world may continue to be intermittently and partially refrained from going out or banned from going out for which will also cause prolonged stress.

In this context, the paper examines the importance and usefulness of yoga for effective stress management, with specific focus on urban residents. With an online survey conducted in Japan, the paper argues that in the urban lifestyle during as post COVID-19, yoga can play an important role in stress management, as well as overall health management.

## YOGA AND ITS EFFECTS ON HEALTH AND STRESS MANAGEMENT

Yoga is defined as “stopping all activities of the mind and mind (chitta)” (MOA 2017, p 4-5) [5]. This section describes the medical science related argument for effectiveness of Yoga. Our minds are influenced by the physical world and are in a state of confusion and suffering every day. Minds and thoughts are constantly changing, and yoga is the task of completely stopping change while controlling the changing mind. With yoga, one can free oneself from the state of mind that is trapped in that suffering and binding (MOA 2017, p 4-5) [5]. By stopping the movement of one’s mind, one can reach a state of enlightenment and control it in a calm state. Yoga is to calm one’s mind and free oneself from the painful conditions of confusion. In other words, yoga is a mental activity aimed at calming the mind and body. In addition to using various asanas (poses), pranayama (breathing), meditation (meditation), yoga is a healthy and lively lifestyle with a balanced approach to life [5]. It makes the most of the ability of yoga breathing (pranayama) and meditation to balance the sympathetic and parasympathetic nerves. The stress hormone cortisol has emerged as the true nature of stress. It has been found that high levels of cortisol secreted by long-lasting stress reduce the processes of nerve cells in the hippocampus of the brain. The hippocampus is the part that controls memory and is involved in emotions. It has become apparent that damage can lead to dementia and depression. Yoga breathing is an effective way to solve this [6]. Numerous researches have pointed out scientific value of yoga on health management.

In addition, the program “Mindfulness”, which was born based on yoga meditation, is attracting attention as a method of preventing mental illness caused by breathing [7]. Mindfulness meditation and reduced breathing can help calm the amygdala and manage stress [8]. Because the respiratory center is close

to the pituitary gland, yoga control of the pituitary gland calms the pituitary gland and suppresses cortisol secretion from the adrenal cortex to reduce stress. Pranayama can reduce blood flow in the pituitary gland and reduce stress.

It is said that serotonin levels are low in stress and depression. Serotonin is a transmitter that suppresses the runaway of noradrenaline and dopamine and balances the mind. The serotonin nervous system exists as tens of thousands of cell bodies in the raphe nuclei in the midline of the brainstem, and its axons project to a wide range of brain regions from the cerebral cortex to the spinal cord, affecting various brain functions [9]. Therefore, mental stability can be obtained by increasing serotonin. In particular, the spontaneous firing mode of serotonin nerves has the following characteristics. Regular impulse firing continues at a few hertz during awakening, with slow-wave sleep firing sparsely and irregularly, and REM [rapid eye movement sleep] sleep with complete firing arrest. In other words, it works on the cerebral cortex and has various functions such as making one feel refreshed when wake up, making one’s body active when wake up in the morning, suppressing the sensation of pain, and working on anti-gravity muscles. When serotonin is low, these functions do not work well, making it harder to get up and making it easier to feel pain in trivial matters. Serotonin is said to increase through a regular life, exposure to light, and rhythmic exercises such as dancing and jogging [10].

[11] a professor of integrated physiology at Toho University School of Medicine, conducted Zen yoga breathing exercises for people who had no experience in zazen and observed the appearance of alpha waves [11]. Among the  $\alpha$  waves (8-13Hz), the high-frequency  $\alpha 2$  component (10-13Hz) increased significantly, theta waves decreased, and  $\beta$  waves did not show significant fluctuations. The point to note about the appearance of alpha waves during awakening is that anyone who closes their eyes immediately becomes an alpha wave-dominant brain wave [12]. Therefore, we tried Zen yoga breathing even when the eyes were closed (note that the above data is in the open state). Since the eyes are closed, a high peak of the  $\alpha$  wave is observed from the beginning. The  $\alpha$  wave (corresponding to the low frequency  $\alpha 1$  component) disappears at about 7 minutes of the breathing method, and instead, at 4-5 minutes of the breathing method, a new  $\alpha 2$  component appears and is gradually enhanced. That is, it was considered that the Zen yoga breathing method changed the arousal state of the brain waves and the cerebral cortex through a pathway in the brain different from that by closing the eyes. [13]. It is rhythmic exercise that further enhances serotonin neural activity in the awake state. Yoga, the rhythmic movement of breathing, enhances the impulse firing of serotonin nerves.

Yoga seems to be used by wider variety of people and professionals from different section of the society. Tom Brady’s

health regimen would not be complete without a healthy dose of ancient Eastern wisdom. He is a hardcore lover of yoga, which he gives credit for miraculous mental and physical benefits: “It’s great for flexibility, it’s therapeutic, and great for your attitude.” Sports personnel, including Major League baseball players, soccer players, sumo wrestlers are found to be using yoga increasingly for both their stress and health management [14]. In Japan, yoga is gradually introduced to elementary, junior and middle high schools as a part of extra-curricular activities. Self Defense Forces in Japan, including Maritime Self Defense team are also using yoga when they need to spend longer time in the

### COVIDS-19 STRESS MANAGEMENT

In the world, several countries like China, Italy, France, other EU countries, UK, USA, Russia, Canada, Indian have taken policies such as lockdown and refraining from going out at periodic and spatial ways over last several months. This put billions of people under house arrest for weeks and months at home. This first-ever global experience of lockdown in March 2020 was repeated in the form of second and third waves over the next few months. In other words, this research is characterized by studying the fight against stress caused by the historic number of people under house arrest for the first time in history, also to enhance a better preparedness for similar disasters in the future. This is related to stress management method from the standpoint of disaster prevention and early recovery. People, including celebrities in different countries have been engaged in indoor family or self-activities like cooking, indoor exercise or workout, web concerts etc. to release their stresses, and this can be viewed through numerous social media posts over last several months.

There are several researches on COVID-19 related stresses. The level of stresses varies from people to people, sometimes based on the age, occupation etc. The importance of psychosocial assessment and monitoring is highlighted by [15], and argues that the assessment should include queries about Covid-19–related stressors (such as exposures to infected sources, infected family members, loss of loved ones, and physical distancing), secondary adversities (economic loss, for example), psychosocial effects (such as depression, anxiety, psychosomatic preoccupations, insomnia, increased substance use, and domestic violence), and indicators of vulnerability (such as preexisting physical or psychological conditions).

Different tips are provided through different research for stress management during COVID-19. A few can be listed as follow: healthy eating habit, creative physical exercises, social connectivity, practicing kindness, enough time for rest and relaxing, focusing on mindfulness etc. Integrative consideration of COVID-19 also emphasizes on stress management, and urged the importance of mindfulness

techniques such as meditation, breathing exercises, guided imagery, etc. [16]. In a survey of around 1000 Chinese college students, [17] have pointed out different types of stresses during isolation in COVID-19 period. The study argued that long isolation can have negative consequence on the mental stress among young generation, and have suggested six step intervention strategy, including delivery of appropriate risk information and enhancing knowledge on stress management among others.

Role of yoga in stress management has also been emphasized by several authors. [18] emphasized on the importance of shortage of yoga trainer and argued that yoga practice is actively sought to achieve reduced anxiety and stress so that improved sleep may positively impact immunity. They also argued the importance of social media in spreading online yoga and its usefulness in stress management and highlighted the effectiveness of yoga in working from home stress management. [19] also argued the importance of yoga and Ayurveda as alternative public health approach for COVID-19 health management. Arguing that poor mental health condition including stress and depression, are known to increase the risk of acute respiratory infections, the paper argued that several measures for mental health are described in yoga therapy, including pranayama (breathing exercise) which enhances lung function. Meditation is found to reduce inflammation markers and influence markers of virus-specific immune responses.

### SURVEY IN JAPAN

To understand the stress issues among wider urban residents in Japan, a questionnaire survey on stress management and yoga practice during COVID-19 period was organized by Keio University and Yoga organization of Japan during 15<sup>th</sup> of May to 15<sup>th</sup> of June 2020. The survey was conducted online using promotion through different social media and website. A total of 336 people responded to the survey with different age groups and nationalities (mostly Japanese, but also India, USA and others, who are residing in Japan). Female % of the respondents were higher with 63%. 51% of the respondents are of the age group between 20s and 30s, followed by 23% of 40s and 50s, and 20% under 20s.

Figure 1 shows the results of the survey. It seems that 78% of the respondents are feeling some kind of stresses during COVID-19. The stress is exemplified in the form of different health impact like clod limbs, dizziness, less appetite, irritation, out of breath etc. Financial issue, fear of infection, isolation from society, are some of the causes of stress. People use different ways to release stresses like sports, stretching, yoga, as well as reading etc. Around one third of respondents used to conduct yoga before the pandemic, with a small percentage (18%) were conducting yoga for stress management (Figure 2).

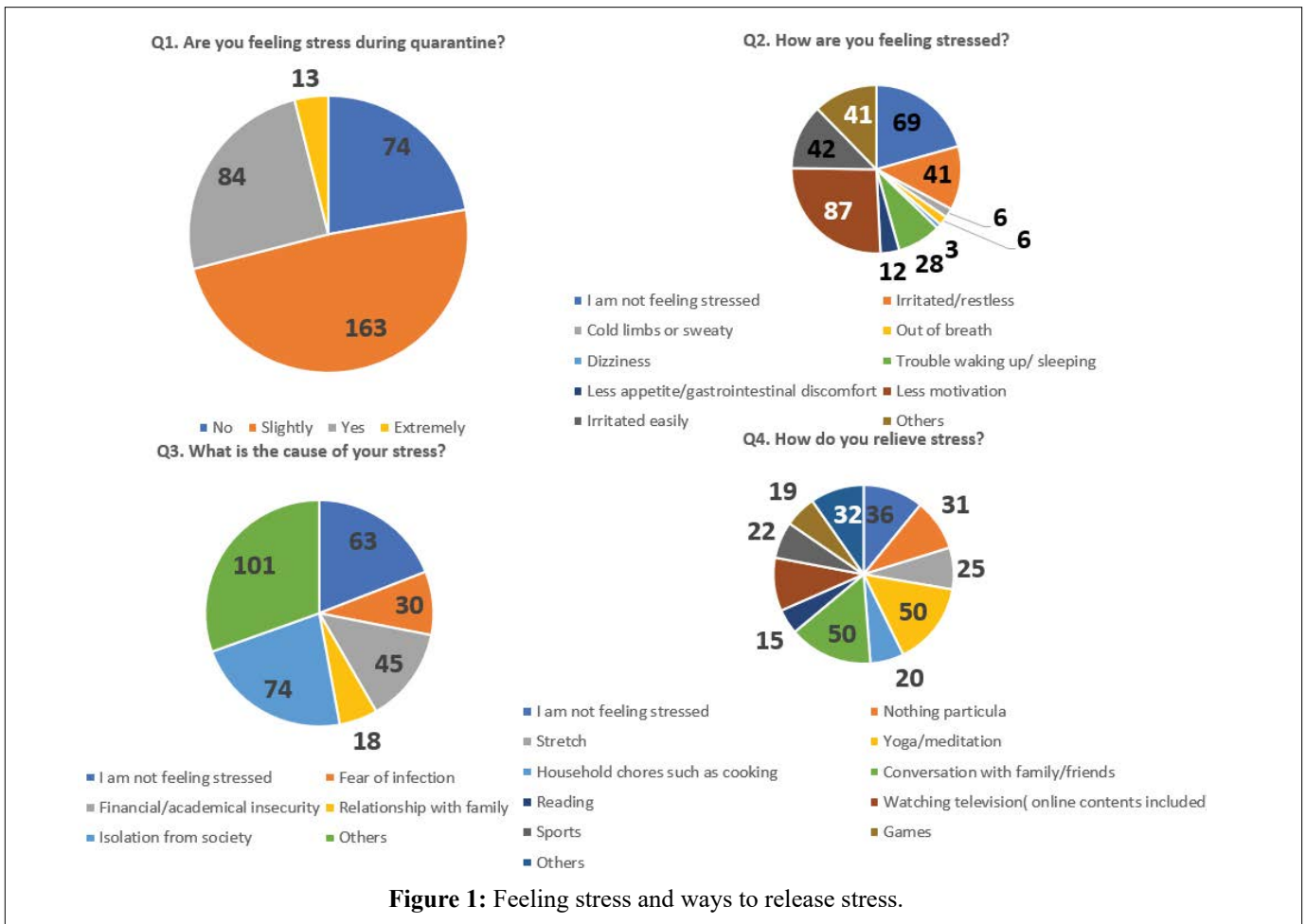


Figure 1: Feeling stress and ways to release stress.

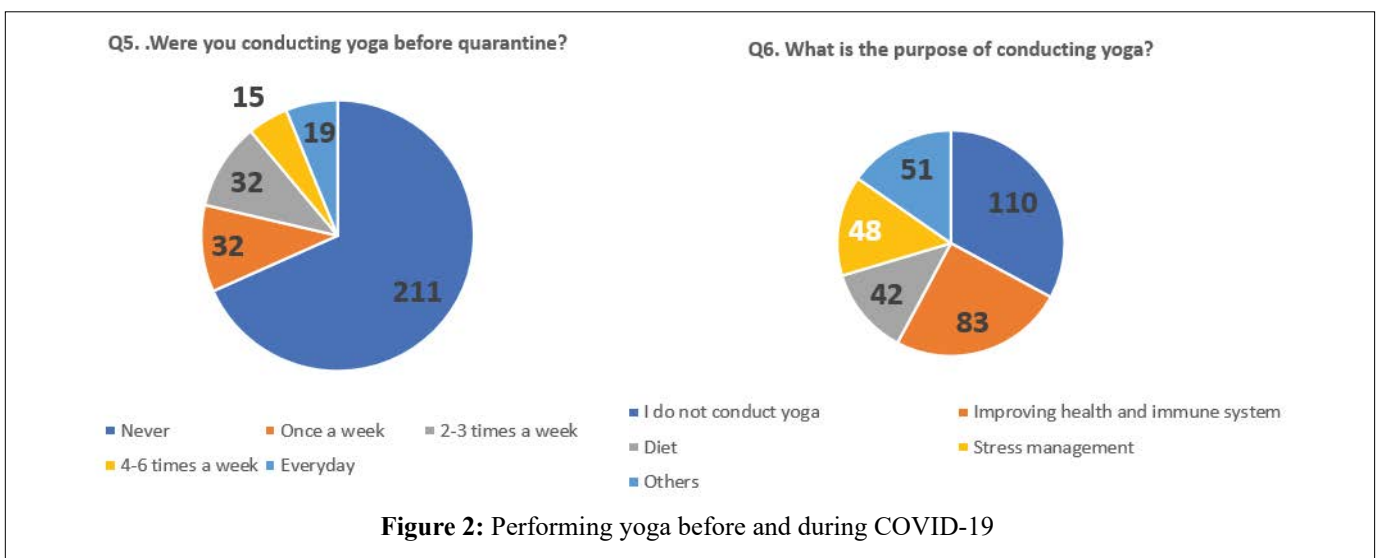


Figure 2: Performing yoga before and during COVID-19

Those who conducted yoga, usually does it once a week or 2-3 times a week (Figure 3). From the survey, it is found that 54% of people who practice yoga, do yoga by themselves, and 36% of people who practice yoga using online platform, including you tube (Figure 3). Usual time is 5-10 minutes and 10-30 minutes (Figure 4). The survey also showed that 37% are doing yoga aiming at improving immunity,

and 21% are doing it for stress management (Figure 4). To a question whether they want to continue yoga after COVID-19, 17% responded positively, especially for the purpose of stress management. A minor percentage (2%) intend to use yoga to improve cardiopulmonary function, while 10% wanted to continue yoga to maintain being slim and good physique.



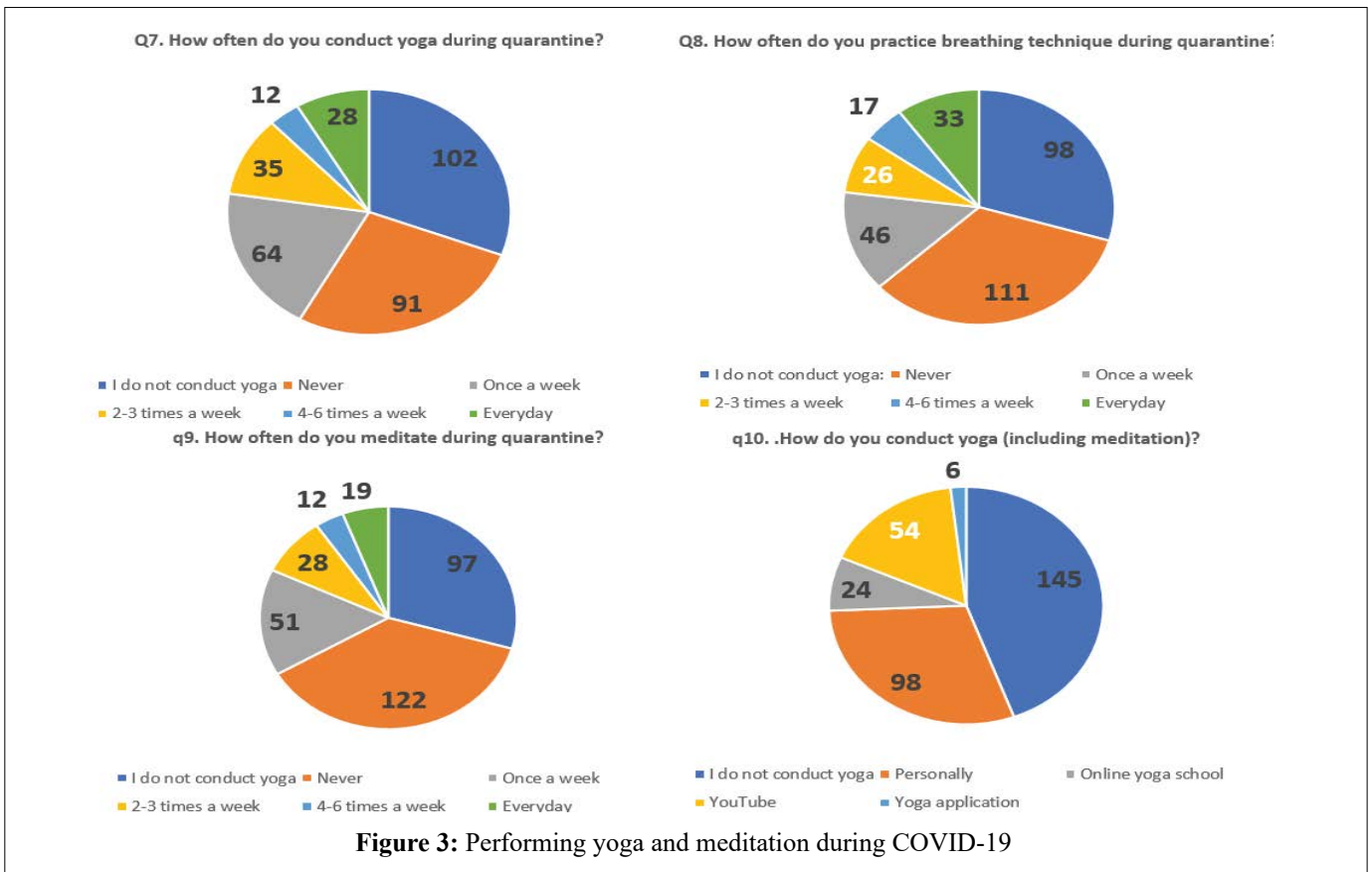


Figure 3: Performing yoga and meditation during COVID-19

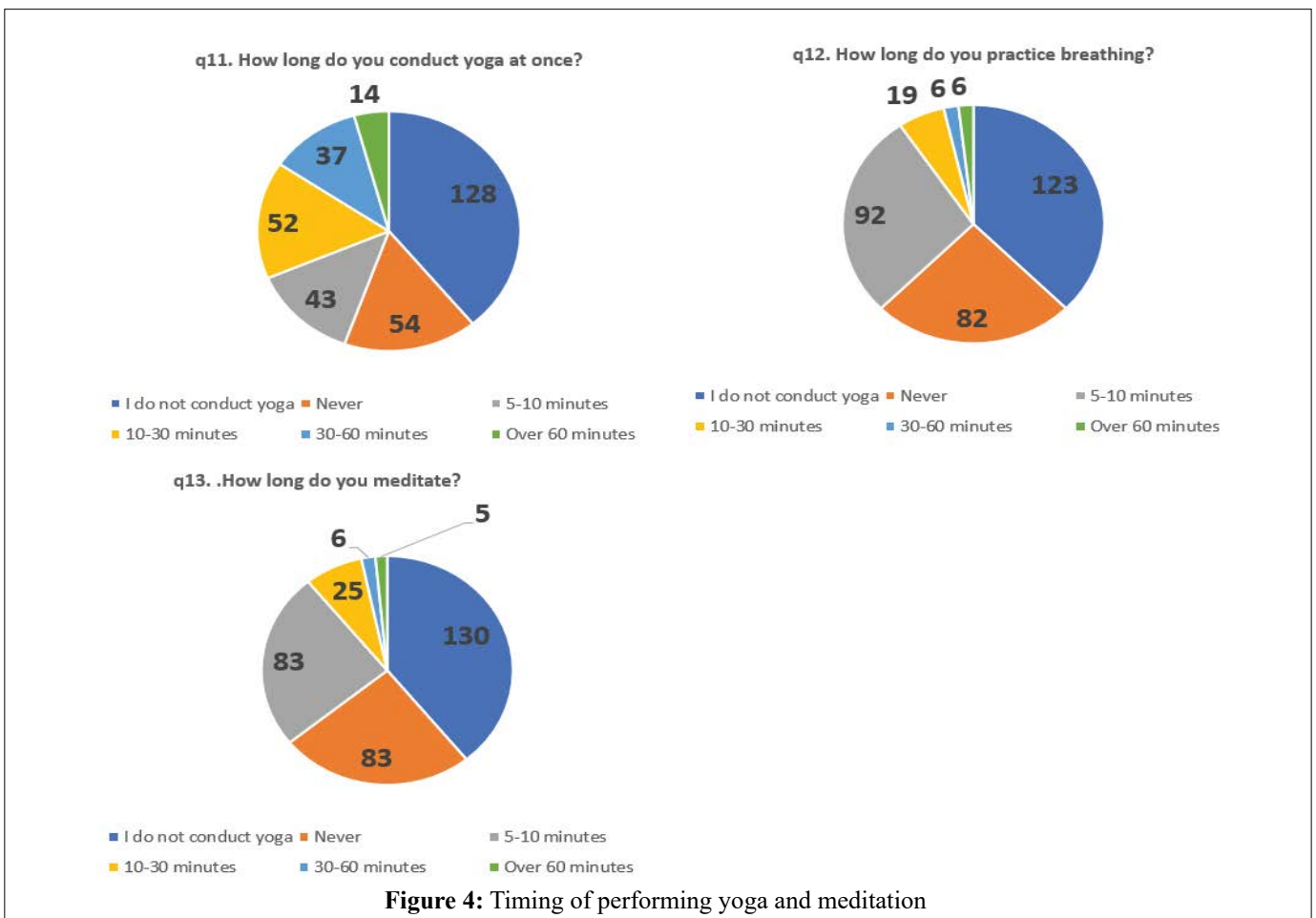


Figure 4: Timing of performing yoga and meditation

## DISCUSSION

Currently, not only Japan but the world is facing the onslaught of new coronavirus infections. Each country has focused on stopping the spread of the infection, even if it suspends its economy, industry and education, and as a result, working from home by refraining from going out has become a norm, and our lifestyle has changed significantly. Under the circumstances where it is difficult to accept patients in hospitals because of over-crowded healthcare systems, different virtual ways of communication methods such as telework, take-out, online shopping, mail order, etc. are getting popular. Social change is accelerating due to the psychological effects of anxiety and fear of being unable to meet people. In the future, even if the epidemic of the new coronavirus infection is settled, it is thought that the lifestyle with physical distance as a new countermeasure against infectious diseases will remain the same. Therefore, it is required to propose changes in urban lifestyles, focusing on people's health and happiness, and how to have a sustainable lifestyle in the future.

As a characteristic of urban lifestyle, there is a tendency to like queues and crowds. Events such as parties, dining out, museums, concerts, etc. are great pleasures of the urban lifestyle, and while stimulating the exchange of different cultures with exciting knowledge and technology, we seek nature and relaxation in rural areas. However, during pandemic, these events themselves were restricted, depriving people of the pleasure of going out. Physical distance has become a new manner, and online gatherings, shopping, and browsing have progressed, depriving the characteristic enjoyment of urban lifestyles. The drastic reduction in opportunities to express oneself in relation to others has made it difficult to satisfy the desire for self-approval from status appeals and group appeals, and the altruistic value of branded products and luxury products among consumers has also declined.

In addition, social infrastructure such as transportation, cityscapes, and lifelines support urban lifestyles. Even if the houses are small in size in urban areas in Japan, many people commute to work comfortably in an office building equipped with air conditioning control. However, due to the request to refrain from going out, the population of commuters concentrated in the city decreased, and they were forced to stay in a small house. It doesn't require long commute times and doesn't move. Under these circumstances, the value of urban social infrastructure has declined rapidly, and many companies have lost the meaning of renting offices in buildings at high rent.

The concept of care and cure got its new position in urban lifestyle due to pandemic. While people go to hospitals and health centers for getting cured, it is increasingly becoming important to make proper health care measures which prohibits

disease, and also enhance immunity and reduces stresses in a busy urban lifestyle. From the above survey results, it is observed that while there is a significant urban resident in Japan who were felling stress during the COVID-19 pandemic, not that many people were practicing yoga. The history of yoga in Japan date back to the year 806 during Tang Dynasty, however, the recent days yoga started when Tempu Nakamura practiced yoga in 1919 and started teaching it. Yoga has been popular among the female urban residents over years, which has been mainly used as a mean to stay slim and fit. The yoga movement in Japan got the boost with the start of International Yoga Day in 2015 by Government of India, which promoted yoga globally as a soft power tool. Yoga Organization of Japan has been strongly promoting yoga among different age groups and professionals, including national diet members.

It is interesting to note from the survey that those who were doing yoga could find it to be effective means for stress management. Similarly, yoga can also be effective against the harmful effects of lockdown and refraining from going out. The benefits of performing yoga can be summarized as: 1) one can practice yoga indoor and by alone, 2) All generations (elderly, middle-aged, elementary, junior high and high school, infants) can practice yoga, 3) prevents the risk of illness due to lack of exercise, 4) avoiding personal and family crises due to stress, and 5) yoga is possible for people with disabilities.

The following points should be kept in mind when creating a future COVID-19 yoga program: 1) regularly train your lungs with breathing exercises (prevention), 2) eliminating lack of exercise by asana (pose), 3) immunity boosting and stress release by asana, 4) relieve stress by meditation, 5) immunity boosted by Ayurvedic diet, and 6) reducing economy class syndrome due to asana. In addition, from the perspective of disaster prevention yoga, it is necessary to carry out yoga programs from pre-disaster prevention. Performing yoga on a regular basis is a measure against COVID-19. In addition, regarding disasters other than corona, it is necessary to make policy recommendations to create and disseminate a yoga program to maintain physical and mental health and wellness in the event of a disaster, especially in the evacuation centers.

## CONCLUSION

The study focused on the urban residents during COVID-19 pandemic and looked at the stress people were facing. The online survey pointed out that while significant percentage of people are undergoing stress, only one fifth practiced yoga as a stress management reliever. However, those who have practiced yoga wanted to continue it even after the pandemic is over. The paper also argues that in Japanese urban lifestyle, stress is a significant part, with or without Corona. Therefore, practicing yoga as a part of urban lifestyle helps in reducing the stress, enhances immunity against diseases and enhances physical

fitness. Since yoga and meditation can be practiced anywhere by any age groups, including people having disabilities, this can be a part of healthy lifestyle. Yoga can be considered as a part of “care” system, which will reduce the pressure on the “cure” systems in the hospital and health centers.

## AUTHOR CONTRIBUTION

A.K. contributed to survey, analysis and initial writing of the draft. R.S. contributed to conceptualization, initial writing. Both the authors have read and agreed to the current version of the manuscript.

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