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RESEARCH ARTICLE

# Meditation and Mental Health (Depression, Anxiety, and Stress) in Saudi Arabia

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## ABSTRACT

**Introduction:** Meditation encompasses any practice that connects an individual to their inner self. All these practices essentially serve to relax and divert both the mind and the body away from worries and concerns. The popularity of meditation has grown tremendously in the last century. Due to its correlation with mental health, research efforts spiked to uncover an association.

**Purpose:** The main objective is to measure the frequency of meditation among the Saudi population and to understand its impact on mental health (depression, anxiety, and stress).

**Methods:** We used a cross-sectional design among the population in Saudi Arabia. A validated online questionnaire was distributed via social media channels using convenience sampling. Chi-square tests were used to determine associations between meditation, demographics, depression, anxiety, and stress.

**Results**: A total of 902 respondents answered the survey. The majority (75%) reported practicing some form of meditation and the most common meditation practice was exercise, which was reported by 390 (43%). The proportion of those with severe/extremely severe depression was higher in the group that did not meditate (38%) as compared to 29% in the group that meditated (p=0.03). A similar difference was seen for the stress levels, with 38% of the non-meditating group having severe/extreme level of stress as compared to 28% in the meditating group (p=0.03). There was no significant difference in the anxiety level between the two groups (p=0.38).

**Conclusion:** Meditation practice frequency is relatively high in Saudi Arabia. Our study uncovered an association between meditation and mental health status. The proportion of those with severe/extremely severe depression and stress was higher in the group that did not meditate. Meditation must be given higher priority in the management of mental health cases, especially in the early stages. Due to the limited meditation studies among the Saudi population, further research is essential to better understand the relationship between mental health and meditation.

KEYWORDS:
Meditation, Depression, Anxiety, Stress, Mental Health Saudi Arabia

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# INTRODUCTION

Meditation takes on many different forms and does not have a unified definition. The most widely agreed-upon notion is that meditation encompasses any practice that connects an individual to their inner self. All these practices essentially serve to relax and divert both the mind and the body away from worries and concerns (Sharma, 2015). The ultimate goal of meditation is to focus on the present moment and block any external distractions. Meditation is categorized into seven main groups: mindful observation, body-centered meditation, visual concentration, contemplation, affect-centered meditation, mantra meditation, and meditation with movement (Matko & Sedlmeier, 2019).

The benefits of meditation are a consequence of a neurophysiological change; meditation acts on the autonomic nervous system by reducing the activity of the sympathetic nervous system and increasing the activity of the parasympathetic nervous system. This will result in an overall decrease in the release of stress hormones like catecholamines and cortisol occur (Rajaraman, 2013).

Concentration meditation and mindfulness meditation are two essential forms of meditation. Concentration meditation intends to willfully direct the mind's attention onto a particular object only, such as one's breath, the rhythm of a chant, or an illusory object. Mindfulness meditation intends to increase one's awareness about the current mental status (Latham, 2016). Breathing is a form of meditation. Furthermore, Pranayama is a regular practice of breathing exercises. In a study that measured the effect of pranayama on the function of both the sympathetic and parasympathetic systems, it was found to cause sympathovagal balance, which served to relax the body and mind. This was found to decrease mental distress and increase well-being (Singh[1] et al., 2019).

Creating art is also considered a form of meditation, which presents a wide scope of meditation methods. A newly developed therapy known as meditation-based art therapy (MBAT) has been found to reduce stress levels. A study used functional magnetic resonance imaging (fMRI) on individuals that practiced MBAT found that cerebral blood flow decreased during stressful situations (Hinchey, 2018).

Meditation practices are linked to improving meditators' mental health status and reducing stress levels. A correlation between meditation and improved intelligence level has been explored as well. In addition, a study that aimed to identify the immediate and long-term effects found an increase in both IQ and cognitive abilities (Prakash et al., 2012).

## Purpose and Significance

The objective is to measure the frequency of meditation among the Saudi population and to understand its impact on mental health (depression, anxiety, and stress). There are limited peer-reviewed studies about meditation and mental health among the Saudi population. This study will be novel as it will add value to the current literature.

# METHODS

A cross-sectional design was used among Saudi Arabia's residents, including adults above 18 years old, Saudis, and non-Saudis. An online questionnaire was created using Google docs and distributed via social media channels such as WhatsApp, LinkedIn, Facebook, Twitter, and Snapchat using convenience sampling. The estimated annual population of Saudi Arabia in 2020 was around 34.8 million. Our sample size was determined to be 384 at the 95% confidence and a 5% margin of error, with an expected outcome response of 50%. We aimed for higher response to ensure generalizability.

A validated questionnaire for the meditation (Soler et al., 2014) and the Depression Anxiety Stress Scales questionnaire (DASS) (Australia, 2018) were both used and adjusted to fit the objective of our study. The questionnaire included three main sections. The first section included demographic questions, including age, gender, nationality, employment status, marital status, and monthly income. The second section included questions related to meditation practices including, type and frequency of meditation. The last section covered (DASS). The questions were translated word by word to Arabic by a translator. It was distributed in English and Arabic. Face and content validity were achieved by experts in the field and a translator. The questionnaire was anonymous to ensure the respondents' privacy and confidentiality. Access to the surveys' responses was limited to the investigators. The Institutional Review Board (IRB) at Alfaisal University approved this study.

The authors used SPSS version 24 to analyze the data. The authors presented descriptive statistics as frequencies and percentages for the categorical variables. The authors used Chi-square test to determine an association between meditation practice and demographics, as well as with the depression, anxiety, and stress categories. The significance level for the statistical tests was set at 0.05.

# RESULTS

The online survey included a total of 902 respondents. The majority of these were females (74%), aged between 18 to 29 years (59%), and Saudi nationals (84%), as shown in Table 1. The majority of them were single (65%) and not employed (59%); of those who reported their monthly income, 283 (32%) did not have a monthly income, and 202 (23%) had a monthly income of less than SR 10,000 (US$ 2650).

There were a total of 674 (75%) respondents who reported practicing some form of meditation; of these, 641 respondents reported their frequency of meditation. Almost half of them, i.e., 279 (44%), practiced some meditation on a daily basis, while another 232 (36%) reported doing some meditation weekly. The majority of them, i.e., 385 (60%), practiced meditation for up to <30 minutes per session, and most (64%) of them were doing meditation for more than six months (Fig 1). The most common meditation practice was exercise, which was reported by 390 (43%) of the 902 respondents, followed by 316 (35%) practicing breathing, 254 (28%) for faith-based

practices, and 237 (26%) for yoga (Fig 2).

Table 2 shows the comparison of demographic characteristics between those who practiced meditation (n=674) and those who did not meditate (n=219). Of those who did not meditate, 146 (67%) were aged 18-29 years as compared to 385 (57%) in the group that meditated (p=0.04). There was a greater proportion of females in the group that practiced meditation (76%), while there were 68% females in the group that did not meditate (p=0.03). There were no other significant differences for nationality, employment status, or monthly income between those who practiced meditation and those who did not (p>0.05).

Table 3 shows the comparison of depression, anxiety, and stress levels between those who meditate (n=647) and those who do not meditate (n=191). It was found that the proportion of those with severe/extremely severe depression was higher in the group that did not meditate (38%) as compared to 29% in the group that meditated (p=0.03). A similar difference was seen for the stress levels, with 38% of the not meditating group having severe/extreme levels of stress as compared to 28% in the meditating group (p=0.03). There was no significant difference in the anxiety level between the two groups (p=0.38).

## DISCUSSION

The popularity of meditation has grown tremendously in the last century. Due to its correlation with mental health, research efforts spiked to uncover an association (Kang et al., 2014; Kok & Singer, 2017; Sharma, 2015). Therefore, the main objective of this study is to measure the frequency of meditation among the Saudi population and to understand its impact on mental health (depression, anxiety, and stress).

The prevalence of meditation is high in Saudi Arabia; our findings indicated that 674 (75%) of respondents reported practicing some form of meditation. Similarly, others found unconventional treatment methods (such as meditation) to be more accepted by Saudis; 52% of 2114 participants reported practicing complementary and alternative medicine (CAM) (AlShehri et al., 2020). A study used the National Health Interview Survey NHIS of USA in 2012, including 34,525 individuals; it concluded that the prevalence of meditation was 5.2% lifetime and 4.1% in a 12 months period (Cramer, Hall, et al., 2016). The prevalence of meditation practice increased globally as more individuals are discovering its value. It was estimated that almost 21 million USA adults practiced yoga in the last 12 months (Cramer, Ward, et al., 2016).

Our results showed that 279 (44%) of the respondents practiced some form of meditation daily, while another 232 (36%) reported doing some meditation on a weekly basis.

The majority of them, i.e., 385 (60%), practiced meditation for up to <30 minutes per session, and most (64%) of them were practicing meditation for more than six months. Lemay et al., (2019) found that mindful meditation and yoga activities as infrequent as thirty minutes once a week have been sufficient to significantly reduce stress and anxiety levels (Lemay et al., 2019).

Since meditation is practiced in many forms, we found that the most common meditation practice was exercise, which was reported by 390 (43%) of the 902 respondents, 315 (35%) practiced breathing, 254 (28%) used faith-based or spiritual practices, followed by 237 (26%) for yoga. A study in the United States found spiritual meditation to have a 3.1% prevalence, mindfulness meditation to have a 1.9% prevalence, and mantra meditation to have a 1.6% prevalence (Burke et al., 2017). Another study found an incline from 8.9% (n = 3,080) in 2012 to 13.3 % (n = 3,552) in 2017 in the prevalence of yoga and breathing meditation (Yobam) amongst study participants (Schröter & Cramer, 2021). The differences in meditation forms practiced could be due to the differences in the cultures.

Our study indicated that for those who did not meditate, 146 (67%) were aged 18-29 years as compared to 385 (57%) in the group that meditated (p=0.04). It was seen that there was a greater proportion of females in the group that practiced meditation (76%), while there were 68% females in the group that did not meditate (p=0.03). Our findings are in concordance with other studies that found that there is a higher prevalence of women using complementary and alternative (CAM) methods such as yoga and tai chi. They also found that women perceived it to be more helpful in improving their overall sense of well-being than their male counterparts (Upchurch & Johnson, 2019). Others found that those who meditate generally adopt health consciousness and physically active lifestyles when compared to non-meditators. Higher utilization of meditation was found amongst females with some forms of functional limitations or health complaints such as lower back pain and depression in the past 12 months (Burke et al., 2017). Some studies found that individuals meditated to improve their general wellbeing (76.2%), to improve their energy (60.0%), or to help them focus (50.0%). The health problems for which people meditated were anxiety (29.2%), stress (21.6%), and depression (17.8%) (Cramer, Hall, et al., 2016). A study found that both genders meditated to manage stress. More commonalities found amongst the genders were that both are more likely to be unmarried, have earned a college level of education or higher, and live with some form of mental distress (Upchurch & Johnson, 2019).

We found that the proportion of those with severe/extremely severe depression was higher in the group that did not meditate (38%) as compared to 29% in the group that meditated (p=0.03). A randomized controlled trial aimed to explore the effect of mindfulness meditation on patients with a lifetime history of depression showed a significant reduction in depressive symptoms (Winnebeck et al., 2017). A meta-analysis examined the effects of mindfulness meditation interventions (MMI) on depression among older adults. It included 1,076 participants and concluded that MMI significantly improved depressive symptoms (Reangsing et al., 2020). Studies confirmed that mindfulness meditation could be used as an alternative treatment for the early stages of depression (Kyselova et al., 2018). Similarly, it was found that

meditation has a significant effect in reducing depression, especially amongst university students (González-Valero et al., 2019). However, another study observed the impact of Yoga Nidra and meditation on anxiety and depression among 60 college professors indicated better anxiety results for the intervention groups with no significant improvement for the Beck Depression Inventory (Ferreira-Vorkapic et al., 2018), which can be due to the complexity of depression or its late stages. A study indicated that exercise-based yoga was not effectively reducing the symptoms of depression; however, integrative styles that emphasize meditation were found to be effective (Gong et al., 2015).

Our findings indicated a difference in the stress levels, with 38% of the non-meditating group having severe/extreme levels of stress as compared to 28% in the meditating group (p=0.03). A randomized control study confirms our findings as it shows that Internet Mindfulness Meditation Intervention (IMMI) improved depression, perceived stress, insomnia and pain severity (Wahbeh, 2018). A meta-analysis of 34 studies revealed that meditation practices had the largest impact on the reduction of stress levels. A moderately positive impact uncovered a decrease in anxiety symptoms and a small but significant impact on depressive symptoms. Mindful meditation, in particular, even for short durations as five to eight weeks, has been found to show the greatest impact on mental health (González-Valero et al., 2019). Moreover, evidence of improved memory, quality of sleep, and stress management have also been reported among meditators compared to non-meditators (Burke et al., 2017).

No significant difference in the anxiety level between the two groups (p=0.38) was found. Saeed et al. (2019) found that nonconventional interventions, including meditation, can improve depression and anxiety disorders; however, positive findings are less common in individuals with anxiety disorders (Saeed et al., 2019). Another study on a group of university students in their early twenties found that women reported significant decreases in negative affect after participating in mindful meditation for a 12-week period. Men, on the other hand, did not have significant improvements in self-reported mood despite there being no differences in hours meditated and matching of baseline effect at the beginning of the study (Rojiani et al., 2017). Not all studies are in favor of mindful meditation as a solution to anxiety syndromes. A study investigating the efficacy of mindful meditation on hemodialysis patients found that despite up to 50% of patients experienced depression and anxiety, no significant effects were found from the implementation of mediation by these patients. This intervention was reported to be enjoyable by the patients but fail in terms of long-term efficacy in maintaining a significant drop in anxiety levels when assessed by questionnaires. These findings may suggest that patients with milder forms of anxiety would be more eligible candidates for mindful meditation treatment for anxiety (Thomas et al., 2017). Some studies have even reported instances in which episodes of psychosis, panic, anxiety, and traumatic memory re-experiencing were induced by meditation sessions. These studies claim that individuals with serious illnesses might be misled by the over-exaggeration of the true efficacy of mindful meditation and that more traditional methods such as pharmacotherapy should not be replaced by meditation practices (Van Dam et al., 2018). Many studies have shown positive views of meditation in treating depression, however, there is a body of research that contradicts such claims. A systematic review of 83 articles that analyzed adverse meditation events (MAE) noted that the most common adverse effects were psychiatric MAE, which was found in 40 articles (49%). The most common symptoms were anxiety (18 studies) and depression (15 studies). Such adverse effects were found even in those with no previous psychiatric disorders. This emphasizes the importance of considering the negative impact of meditation (Farias et al., 2020). Similarly, a review of observational and experimental studies aimed to explore the negative impact of meditation. Upon reviewing 39 articles, among the most common adverse effects noted were: emotional difficulties, a decline in memory, delusions, and distorted sense of self. This further emphasizes the potential harm that meditation practice can pose (Lambert et al., 2021).

## CONCLUSION

Meditation practice frequency is relatively high in Saudi Arabia. Our study uncovered an association between meditation and mental health status. The proportion of those with severe/extremely severe depression and stress was higher in the group that did not meditate. There was no significant difference in the anxiety level between the two groups. Furthermore, meditation must be given higher priority in the management of mental health problems, especially in the early stages. Due to the cross-sectional nature of the study, causal infernal cannot be obtained. Using DASS as a measure of depression, stress, and anxiety does not indicate a clinical diagnosis. Due to the limited meditation studies among the Saudi population, further research is essential to better understand the relationship between mental health and meditation.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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T**able 1:** Demographic characteristics of the respondents (N=902)a

| | n | (%) |
|---|---|---|
| **Age** | | |
| 18 - 29 | 535 | 59.4 |
| 30 - 44 | 232 | 25.8 |
| > 45 | 133 | 14.8 |
| **Gender** | | |
| Female | 667 | 74.2 |
| Male | 232 | 25.8 |
| **Nationality** | | |
| Saudi | 755 | 84.3 |
| Non - Saudi | 141 | 15.7 |
| **Marital status** | | |
| Single | 581 | 64.6 |
| Married | 266 | 29.6 |
| Divorced / Widowed | 53 | 5.9 |
| **Employment status** | | |
| Yes | 365 | 40.6 |
| No | 533 | 59.4 |
| **Monthly income** | | |
| ≤ 9,999 SR | 202 | 22.6 |
| 10,000-19,999 SR | 160 | 17.9 |
| ≥ 20,000 SR | 91 | 10.2 |
| I do not have a monthly income | 283 | 31.7 |
| I prefer not to answer | 156 | 17.5 |

[a]Some missing data for different variables - so valid percent reported

**Table 2:** Comparison of meditation practice by demographic characteristics

| | Meditate (n=674)a | Do Not Meditate (n=219)a | p-value |
|---|---|---|---|
| **Age (years)** | | | 0.04* |
| 18 - 29 | 385 (57%) | 146 (67%) | |
| 30 - 44 | 186 (28%) | 45 (20%) | |
| > 45 | 102 (15%) | 28 (13%) | |
| **Gender** | | | 0.03* |
| Female | 511 (76%) | 148 (68%) | |
| Male | 163 (24%) | 69 (32%) | |
| **Nationality** | | | 0.48 |
| Saudi | 570 (85%) | 180 (83%) | |
| Non - Saudi | 101 (15%) | 37 (17%) | |
| **Marital status** | | | 0.03* |
| Married | 203 (30%) | 61 (28%) | |
| Single | 425 (63%) | 152 (70%) | |
| Divorced / Widowed | 46 (7%) | 5 (2%) | |
| **Employment status** | | | 0.39 |
| Yes | 281 (42%) | 84 (38%) | |
| No | 391 (58%) | 134 (62%) | |
| **Monthly income** | | | 0.21 |
| ≤ 9,999 SR | 141 (21%) | 58 (27%) | |
| 10,000-19,999 SR | 129 (19%) | 31 (14%) | |
| ≥ 20,000 SR | 72 (11%) | 19 (9%) | |
| Doesn't have a monthly income | 209 (31%) | 73 (34%) | |
| Prefer not to answer | 118 (18%) | 34 (16%) | |

[a] Some missing data for different variables - so valid percent reported
* Significant at p<0.05

**Table 3:** Comparison of Depression, Anxiety, and Stress scores by meditation practice

| | Meditate (n=647)a | Don't Meditate (n=191)a | p-value |
|---|---|---|---|
| **Depression score** | | | 0.03* |
| Normal-Mild | 333 (52%) | 80 (43%) | |
| Moderate | 125 (19%) | 36 (19%) | |
| Severe-Ext Severe | 185 (29%) | 72 (38%) | |
| **Anxiety score** | | | 0.38 |
| Normal-Mild | 276 (43%) | 73 (38%) | |
| Moderate | 119 (18%) | 33 (17%) | |
| Severe-Ext Severe | 252 (39%) | 85 (45%) | |
| **Stress score** | | | 0.03* |
| Normal-Mild | 365 (56%) | 93 (49%) | |
| Moderate | 103 (16%) | 26 (13%) | |
| Severe-Ext Severe | 178 (28%) | 72 (38%) | |

[a] Some missing data for different variables - so valid percent reported
* Significant at p<0.05

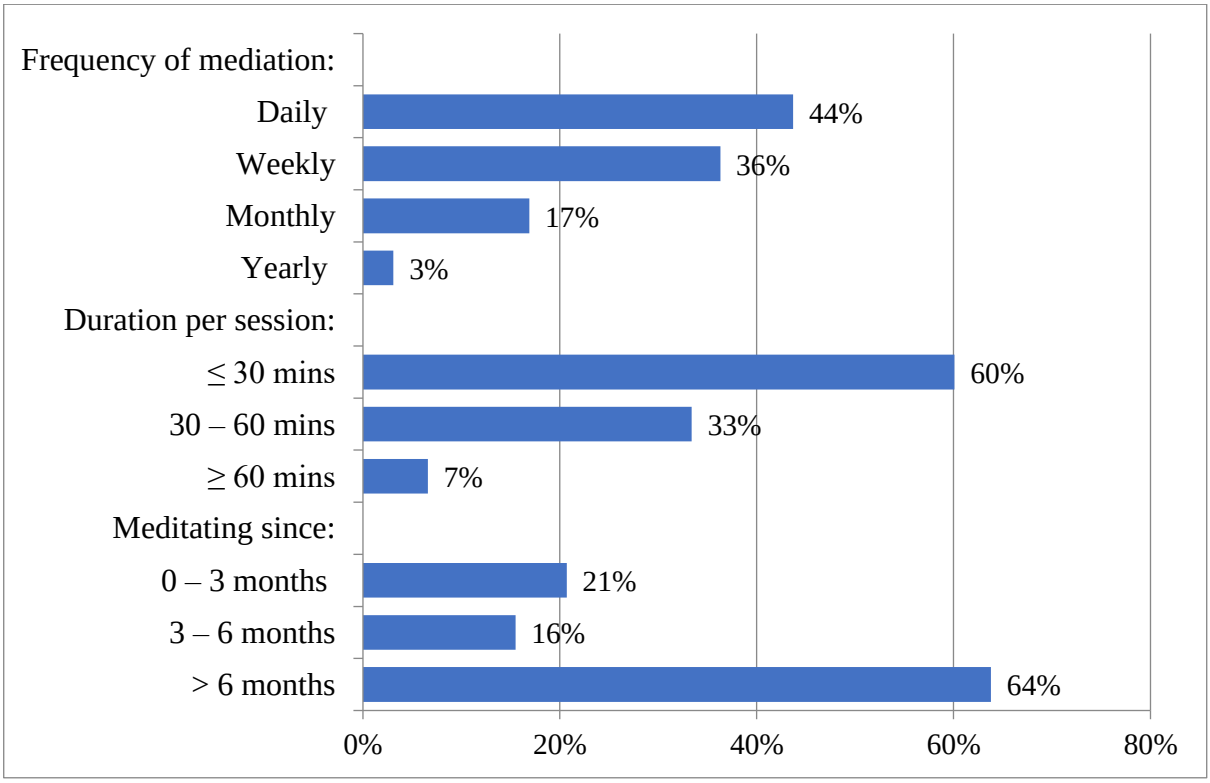


**Fig.1:** Frequency and practice of meditation among the respondents (N=641)

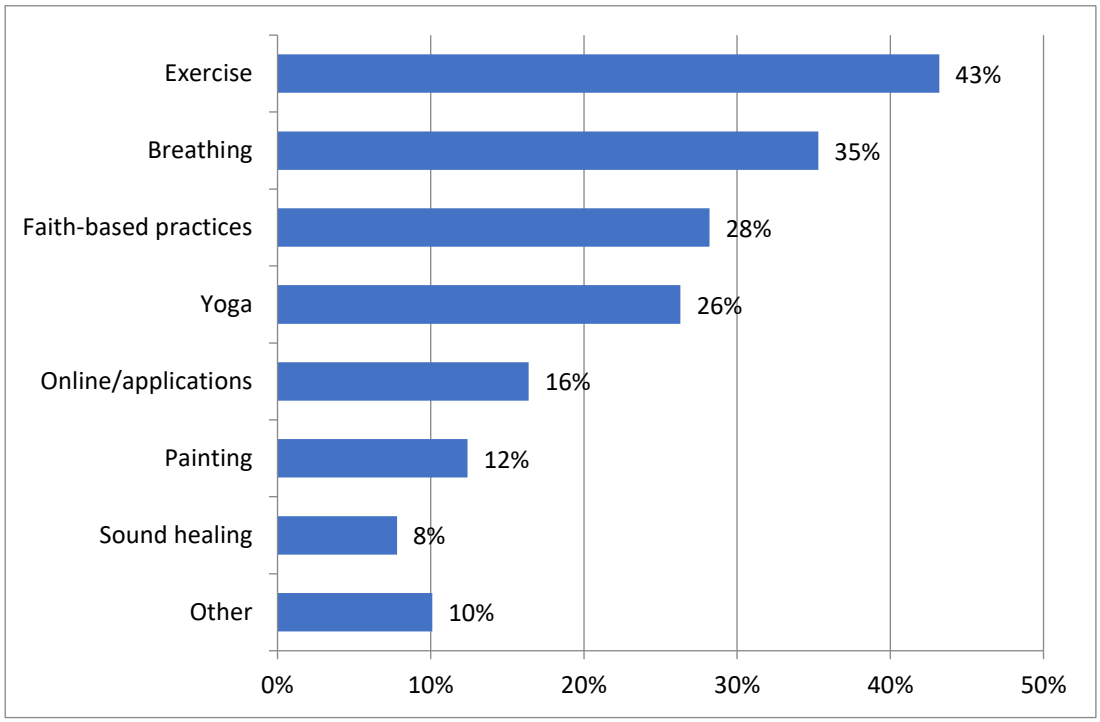


**Fig.2:** Types of meditation practiced by the respondents (N=902)