



Effect of Pranayama-Yoga on Anxiety during Covid-19 Pandemic Amongst Dental Practitioners in Local Select Population

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ABSTRACT

Aim: To assess the effect of pranayam-yoga on anxiety during the COVID-19 pandemic amongst dental practitioners in the Pune, Pimpri-Chinchwad area. **Hypothesis:** Dental practitioners are anxious during the COVID-19 pandemic, dental practitioners do not practice pranayam-yoga and there is no effect of pranayam-yoga on anxiety during the COVID-19 pandemic amongst dental practitioners in Pune, Pimpri-Chinchwad area. **Materials and Methods:** A sample of 286 dental practitioners (125 males and 161 females) with ages from 23 to 69 years was selected by purposive sampling method. The anxiety and pranayam-yoga questionnaire by Mulay and Ubhe (2020) was used to study the variables. **Statistical analysis:** Chi-Square, Pearson's product correlation method. **Results:** The results showed that 20% of dental practitioners had anxiety, 27% maybe have anxiety and 53% did not have anxiety. Pranayam-yoga was practised by 59%, whereas 41% did not practice pranayam-yoga. Negative correlation ($r' = -0.305^{**}$) was found between anxiety and dental practitioners practising pranayam-yoga, and a positive correlation ($r' = 0.198^{*}$) was found between anxiety and dental practitioners not practising pranayam-yoga. Hence, the dental practitioners in Pune, Pimpri-Chinchwad who practised pranayam-yoga had less anxiety. In varied dental practice settings, the Chi-Square value ($\chi^2 = 1.64$) in anxiety and Chi-Square value ($\chi^2 = 0.28$) in pranayam-yoga practice was not significant. In varied years of work experience the Chi-Square value ($\chi^2 = 16.43^{**}$) in anxiety and Chi-Square value ($\chi^2 = 21.06^{**}$) in pranayam-yoga practice was significant. In back to dental practice during and after lockdown the Chi-Square value ($\chi^2 = 46.03^{**}$) in anxiety was significant but the Chi-Square value ($\chi^2 = 2.12$) in pranayam-yoga practice was not significant.

Keywords: COVID-19, Pandemic, Dental practice, Yoga practice, Questionnaire, Survey

INTRODUCTION

Since March 2020, many dental practices were closed due to the spread of Coronavirus in India. After the opening of lockdown in June 2020, some of the clinics started functioning following the new guidelines and protocols. All this certainly created stress and anxiety amongst the dentists owing to many reasons. This study is an attempt to understand the anxiety faced by dental practitioners in their practice. There is documented literature regarding the role of pranayam-yoga in reducing stress and anxiety. This study will help us to understand if the dental practitioners are practising pranayam-yoga to reduce their anxiety and stress and does pranayam-yoga help them to reduce anxiety and stress.

Definitions

Anxiety: Anxiety is excessive fear about real or imagined circumstances. It is the multisystem response to a perceived threat or danger. It shows a combination of biochemical changes in the body, the person's personal history or memory, and the social situation [1].

Pranayam-yoga practice: Pranayam means "restraint of the Prana or breath" which means control of the life force or

breath control. Pranayam is of primary importance in yoga. Yoga is a means of balancing and harmonizing the body, mind, and emotions [2].

Dental practitioner: A dental practitioner is a person qualified to practice dentistry with a qualification of BDS or MDS. A qualified dental practitioner is registered with the Dental Council of India for the provision of general dental services [3].

MATERIAL AND METHODS

Statement of the Problem

A study to evaluate the effect of pranayam-yoga practice on anxiety amongst the dental practitioners during COVID-19 pandemic in Pune, Pimpri-Chinchwad area.

Objectives of the Study

- To evaluate anxiety amongst the dental practitioners during the COVID-19 pandemic in Pune, Pimpri-Chinchwad area
- To determine the percentage of dental practitioners practising pranayam-yoga in Pune, Pimpri-Chinchwad area
- Assessment of the effect of pranayam-yoga on anxiety during COVID-19 pandemic amongst dental practitioners in Pune, Pimpri-Chinchwad area

Hypothesis

- Dental practitioners in Pune, Pimpri-Chinchwad area are anxious during the COVID-19 pandemic
- Dental practitioners in Pune, Pimpri-Chinchwad area do not practice Pranayam-yoga
- There is no effect of pranayam-yoga on anxiety during the COVID-19 pandemic amongst dental practitioners in the Pune, Pimpri-Chinchwad area

Methods

A sample of 286 dental practitioners (125 males and 161 females) with age from 23 to 69 years was selected by purposive sampling method from Pune and Pimpri-Chinchwad area, Maharashtra, India. All participants were registered with the Indian Dental Association of Pune. The study protocol was approved by the Ethics committee of Dr. D.Y.Patil Vidyapeeth, Pune (DYPV/EC/549/2020). The data collection was done by taking prior permission from the Indian Dental Association of Pune in September 2020.

Research Design

The research study was done by using a descriptive cross-sectional questionnaire design. The sample size of 286 was verified by the institutional statistician. A structured questionnaire was designed which was previously pre-tested through pilot testing. This research tool anxiety and pranayam-yoga questionnaire by Mulay and Ubhe (2020) were administered to the sample by an online method due to the COVID-19 pandemic.

Variables

Independent variable

- Dental practice settings such as teaching and private practice, polyclinic and hospital, and only private practice.
- Work experience such as <2 years, 2-5 years, 6-10 years, and >10 years.
- Back to dental practice such as never closed dental practice, during lockdown times and after the opening of lockdown and practice not yet started

Dependent variable

- Anxiety and pranayam-yoga practice

Ethics

The questionnaire link uploaded on the Google form was mailed to the Indian Dental Association of Pune and they mailed it to their members. The personal details and email ids of participants were not mentioned in the Google form questionnaire, so the confidentiality of participants was maintained. Only those dental practitioners, who were willing to participate in the study, have filled the questionnaire.

Tool

Anxiety and pranayam-yoga questionnaire by Mulay and Ubhe (2020). It was a structured questionnaire that was previously pre-tested through pilot testing. Its face and content validity was done by surveying 10 participants. For reliability, Cronbach's alpha value was 0.82.

Statistical Analysis

Data was collected and analysed through SPSS version IBM 0.20. Chi-Square and Pearson's product correlation methods were used.

RESULTS AND DISCUSSION

This study investigated the effect of pranayam-yoga on anxiety during the COVID-19 pandemic amongst dental practitioners in Pune, Pimpri-Chinchwad area with factors such as dental practitioners having anxiety, doing pranayam-yoga practice, different dental practice settings, working experience, back to dental practice during the lockdown, and after the opening of lockdown.

Qualitative Analysis

Dental practitioners who worked in different dental practice settings such as teaching and private practise, hospital, and polyclinic and only private practice were anxious. They had the risk of getting infected by COVID-19 if they came in contact with an infected patient; so in all settings of the dental practice, they were anxious, irrespective of whether they practised pranayam-yoga or not. Those who had maximum working experience and worked in lockdown had less anxiety and they practised pranayam-yoga as compared to those who were new in practice. Those who did not start their dental practice in their clinics had higher anxiety as they still feared getting infected with this coronavirus and were worried more due to personal and family reasons.

World overdue to the COVID -19 pandemic since March 2020, anxiety has gripped the dental fraternity and has affected the dental practitioners at large. The role of pranayama-yoga to reduce anxiety and stress as well boosting innate immunity is well emphasized and documented in the literature. Hence this questionnaire study was carried out in a local select population of dental practitioners. Analysis of this study showed that 20% of dental practitioners had anxiety, 27% maybe have anxiety and 53% did not have anxiety during COVID-19 times (Table 1). Jouhar, et al. in 'Fear and practice modifications among dentists to Combat Novel Coronavirus Disease (COVID-19) Outbreak' reported that despite having a high standard of knowledge and practice, dental practitioners around the globe were in a state of anxiety and fear while working in their respective fields due to the COVID-19 pandemic impact on humanity [4]. Several dental practitioners have either modified their services according to the recommended guidelines to emergency treatment only or closed down practices for an uncertain period.

Table 1 Difference in anxiety amongst dental practitioners

| Variable | Category | N | % |
|----------|--|-----|-----|
| Anxiety | Dental practitioners having anxiety | 58 | 20% |
| | Dental practitioners may be having anxiety | 77 | 27% |
| | Dental practitioners do not have anxiety | 151 | 53% |

In different dental practice settings (Table 2), it was found that the Chi-Square value ($\chi^2=1.64$) was not significant in anxiety, though there was a difference seen in the mean rank. Dental practitioners who worked in teaching and private practice were 27% with a mean rank (M=150.45) had moderate anxiety. Those who worked in hospitals and polyclinic

were 5% with mean rank (M=160.27) had the highest anxiety, and 68% who worked in only private practice with mean rank (M=139.45) had the lowest anxiety. Hence, those dental practitioners doing only private practice were lowest in anxiety, and those who worked in hospitals and polyclinics were highest in anxiety. Rutter, Herzberg, and Paice in 'Stress in doctors and dentists who teach' indicated that doctors and dentists who take on a teaching role in addition to their clinical role may increase their levels of stress [5]. Sahoo, et al. in 'Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study' indicated that a significantly higher proportion of doctors in Indian setting experience stress, depression, and burnout [6].

Table 2 Difference in anxiety in different dental practice settings

| Variable | Dental Practice setting | Mean Rank | Chi-Square | p-value |
|-------------------------------|-------------------------------|-----------|------------|---------|
| Anxiety | Teaching and private practice | 150.45 | 1.64 | 0.440 |
| | Hospital and polyclinic | 160.27 | | |
| | Only private practice | 139.45 | | |
| Not Significant as $p > 0.05$ | | | | |

In groups of varied years of work experience (Table 3), it was found that the Chi-Square value ($\chi^2=16.43^{**}$) in anxiety was significant and there was a difference found in the mean rank. Dental practitioners who had less than 2 years of working experience were 5% with mean rank (M=197.63) scored highest in anxiety. Those who had 2-5 years of working experience were 14% with mean rank (M=170.85) had higher anxiety; those who had 6-10 years of working experience were 15% with mean rank (M=154.45) had moderate anxiety. Dental practitioners with more than 10 years of working experience were 66% with mean rank (M=130.84) scored the lowest anxiety. Hence, those dental practitioners who had working experience of more than 10 years were lowest in anxiety and those who had working experience of fewer than 2 years were highest in anxiety. Wang, Charlotte, and Espin in 'Undergraduate nursing students' experiences of anxiety-producing situations in clinical practicum's: A descriptive survey study' reported that differences were noted between younger (18 to 24 years old) and older (25 to 34 years-old) students, with the older student group reporting lower levels of anxiety associated with the following clinical situations [7].

Table 3 Difference in anxiety with varied years of experience

| Variable | Dental work experience | Mean rank | Chi-Square | p-value |
|----------------------------|------------------------|-----------|------------|---------|
| Anxiety | <2 years | 197.63 | 16.43 | 0.001* |
| | 2-5 years | 170.85 | | |
| | 6-10 years | 154.45 | | |
| | >10 years | 130.84 | | |
| *Significant as $p < 0.05$ | | | | |

In different groups related to back in dental practice during and after lockdown (Table 4), it was found that the Chi-Square value ($\chi^2=46.03^{**}$) in anxiety was significant and there was a difference found in the mean ranks. Dental practitioners who never closed dental practice (March 2020) were 5% with a mean rank (M=46.34) were lowest in anxiety. Those who started their dental practice during lockdown (April, May 2020) were 30% with a mean rank (M=114.86) had moderate anxiety. Dental practitioners who started their dental practice after the opening of lockdown (June 2020) were 45% with a mean rank (M=160.52) had higher anxiety. Whereas those who did not start their dental practice (September 2020) were 20% with a mean rank (M=174.45) had the highest anxiety. Hence, the dental practitioners who had not started their dental practice (September 2020) scored highest in anxiety, while those who never closed their dental practice (March 2020) during COVID-19 times scored lowest in anxiety. Encinas, et al., in 'General anxiety in dental staff and hemodynamic changes over endodontists' workday during the coronavirus disease 2019 pandemic: A prospective longitudinal study' reported that levels of general anxiety were higher during

the first weeks [8]. The chief perceived factors related to anxiety in endodontists and dental assistants were the risk of contagion and protection measures. Bhattacharyya, et al., in ‘Attitude, practice, behaviour, and mental health impact of COVID-19 on doctors’ reported that doctors who were working during the COVID pandemic have a high prevalence of psychiatric morbidity [9]. Another study by Pandey, et al. in “Impact of the lockdown on the mental health of dentists of India- A survey study” in which BDS and postgraduate dental students participated, the results assessed the level of fear, anxiety, and frustration in the dentists regarding the coronavirus the pandemic [10]. A considerable percentage of dentists did not want to work in these times and a considerable percentage was also not willing to treat the patient having flu and directly refer them to the hospital. Around 55.4% of people were also afraid of losing their jobs due to the recession following the coronavirus pandemic. The falling economy feared the dentists about their job and this leads to frustration and mental stress. The workaholic dentists were at home getting frustrated as they didn’t want to sit ideal. The thought of recession brought anxiety and nervousness amongst most dentists.

Table 4 Difference in anxiety related to back in dental practice during and after lockdown

| Variable | Dental Practice status | Mean Rank | Chi-Square | p-value |
|----------------------------|--|-----------|------------|----------------------|
| Anxiety | Never closed dental practice (March 2020) | 46.34 | 46.03 | 0.000* (significant) |
| | Practice during lockdown (April, May 2020) | 114.86 | | |
| | After the opening of lockdown (From June 2020) | 160.52 | | |
| | Not started (September 2020) | 174.45 | | |
| *Significant as $p < 0.05$ | | | | |

With the above results, the hypothesis ‘Dental practitioners in Pune, Pimpri-Chinchwad area are not anxious during COVID-19 pandemic’ was rejected.

The next hypothesis ‘Dental practitioners in Pune, Pimpri-Chinchwad area do not practice pranayam-yoga showed that 59% of dental practitioners practised pranayam-yoga and 41% did not practice pranayam-yoga (Table 5).

Table 5 Difference in dental practitioners practising pranayam-yoga

| Variable | Category | N | % |
|------------------------|---|-----|-----|
| Pranayam-yoga Practice | Dental practitioners practising pranayam-yoga | 170 | 59% |
| | Dental practitioners not practising pranayam-yoga | 116 | 41% |

In the different dental practice settings (Table 6), it was found that the Chi-Square value ($\chi^2=0.28$) was not significant in pranayam-yoga practice, though there was a difference seen in the mean rank. Dental practitioners who worked in teaching and private practice were 27% with mean rank (M=139.36) scored lowest in pranayam-yoga practice; those who worked in hospital and polyclinic were 5% with mean rank (M=147.73) scored highest in pranayam-yoga practice and 68% who worked in only private practice with mean rank (M=144.82) had moderate pranayam-yoga practice. Hence, those dental practitioners working in hospitals and polyclinic did more pranayam-yoga practice than those who practised in only private practice and those who worked in teaching and private practice. Jeevakarunyam et al., in ‘Survey on the utility of pranayam-yoga as an alternative therapy for occupational hazards among dental practitioners’ indicated that only 9.6% of dental practitioners adopted yoga as an alternative treatment for the occupational hazards [11]. A majority (46.4%) of them did exercise gym, massage, walking and heard music. And 43.9% did not take any measures to treat these occupational hazards. However, 53.3% of the dentists did not consider yoga as an alternative therapy.

Table 6 Difference in pranayam-yoga in different dental practice settings

| Variable | Dental Practice setting | Mean Rank | Chi-Square | p-value |
|-------------------------------|-------------------------------|-----------|------------|---------|
| Pranayam-yoga practice | Teaching and private practice | 139.36 | 0.28 | 0.868 |
| | Hospital and polyclinic | 147.73 | | |
| | Only private practice | 144.82 | | |
| Not significant as $p > 0.05$ | | | | |

In the groups of varied years of work experience (Table 7), it was found that the Chi-Square value ($\chi^2 = 21.06^{**}$) in pranayam-yoga practice was statistically significant and there was a difference in the mean rank. Dental practitioners who had less than 2 years of working experience were 5% with mean rank (M=95.16) scored lowest in pranayam-yoga practice. Practitioners with 2-5 years of working experience were 14% with mean rank (M=103.22), were low in pranayam-yoga practice. 15% had 6-10 years of working experience with a mean rank (M=134.43) scored moderately in pranayam-yoga practice. 66% had more than 10 years of working experience with a mean rank (M=157.92) scored highest in pranayam-yoga practice. Hence, those dental practitioners who had working experience of more than 10 years scored highest in pranayam-yoga practice and those who had working experience of fewer than 2 years, 2-5 years, and 6-10 years scored lowest in pranayam-yoga practice. Harano, et al. in 'Effect of pranayam-yoga on mental health: Comparative study between young and senior subjects in Japan' reported that yoga has both immediate as well as long-term effects on anxiety reduction in young and senior subjects in Japan [12].

Table 7 Difference in pranayam-yoga practice with varied years of experience

| Variable | Dental work experience | Mean Rank | Chi-Square | p-value |
|----------------------------|------------------------|-----------|------------|---------|
| Pranayam-yoga Practice | <2 years | 95.16 | 21.06 | 0.000* |
| | 2-5 years | 103.22 | | |
| | 6-10 years | 134.43 | | |
| | >10 years | 157.92 | | |
| *Significant as $p < 0.05$ | | | | |

In groups related with back to dental practice during and after lockdown (Table 8), it was found that the Chi-Square value ($\chi^2 = 2.12$) in pranayam-yoga practice was not significant although there was some difference found in the mean rank. Five percent of dental practitioners who never closed dental practice (March 2020) with mean rank (M=143.59) were moderate in pranayam-yoga practice. 30% of practitioners started their dental practice during lockdown (April, May 2020) with a mean rank (M=133.98) scored lowest in pranayam-yoga practice. Dental practitioners who started their dental practice after the opening of lockdown (June 2020) were 45% with a mean rank (M=150.65) scored highest in pranayam-yoga practice. 20% who did not start their dental practice (September 2020) with a mean rank (M=141.32) were moderate in pranayam-yoga practice. Turagam, et al. in 'Benefits of yoga for dental professionals' reported that practising yoga as a daily routine for dentists offers a way to counteract or avoid many physical conditions that are commonly seen in dental care team members [13].

With the above results, the hypothesis 'Dental practitioners in Pune, Pimpri-Chinchwaddo not practice pranayam-yoga' is rejected.

Table 8 Difference in pranayam-yoga practice related to back in dental practice during and after lockdown

| Variable | Dental Practice status | Mean Rank | Chi-Square | p-value |
|------------------------|--|-----------|------------|---------|
| Pranayam-yoga practice | Never closed dental practice (March 2020) | 143.59 | 2.12 | 0.547 |
| | Practice during lockdown (April, May 2020) | 133.98 | | |
| | After the opening of lockdown (From June 2020) | 150.65 | | |
| | Not started (September 2020) | 141.32 | | |

The next hypothesis ‘There will be no effect of pranayam-yoga on anxiety during COVID-19 pandemic amongst dental practitioners in Pune, Pimpri-Chinchwad’ found that there was a significant negative correlation ($r = -0.305^*$) found between anxiety and dental practitioners practising pranayam-yoga (Table 9). It showed that the dental practitioners who practised pranayam-yoga had less anxiety. Sebastian, et al., in ‘Knowledge of yoga and its health benefits among dentists in South Kerala, India’ the survey revealed that proper yoga training for dentists would help them develop a healthy lifestyle and reduce stress-related health problems [14]. There was a significant positive correlation ($r = 0.198^*$) found between anxiety and dental practitioners not practising pranayam-yoga (Table 10). It showed that the dental practitioners who did not practice pranayam-yoga had higher anxiety. Stephens in ‘Medical Yoga Therapy’ reported that the practice of yoga can help to increase mental energy and positive feelings, and decrease negative feelings of aggressiveness, depression, and anxiety [15]. Another research by Maddux, et al. in ‘The effects of pranayam-yoga on stress and psychological health among employees: An 8 and 16-week intervention study’ found that yoga practitioners showed significant decreases in stress, anxiety, and general psychological health, and a significant increase in well-being [16]. The group who did not practice yoga showed significant decreases in stress, anxiety, depression, and insomnia after they crossed over and practised yoga for 8 weeks.

Table 9 Correlation between anxiety and dental practitioners practising pranayam-yoga

| Variable | Anxiety | Pranayam-yoga practice |
|------------------------|---------|------------------------|
| Anxiety | 1 | -0.305* |
| Pranayam-yoga practice | -0.305* | 1 |

*Significant at 0.05 level

Table 10 Correlation between anxiety and dental practitioners’ not practising pranayam-yoga

| Variable | Anxiety | No pranayam-yoga practice |
|---------------------------|---------|---------------------------|
| Anxiety | 1 | 0.198* |
| No pranayam-yoga practice | 0.198* | 1 |

*Significant at 0.05 level

CONCLUSION

- 20% of dental practitioners in Pune, Pimpri-Chinchwad area had anxiety, 27% may be having anxiety and 53% did not have anxiety during COVID-19 times
- 59% of dental practitioners in the Pune, Pimpri-Chinchwad area practised pranayam-yoga, whereas 41% did not practice pranayam-yoga
- There was a significant negative correlation found between anxiety and dental practitioners who performed pranayam-yoga. Hence, the dental practitioners who practised pranayam-yoga had less anxiety
- There was a significant positive correlation found between anxiety and dental practitioners’ who did not practice pranayam-yoga. Hence, the dental practitioners who did not practice pranayam-yoga had higher anxiety

Implications

Dental practitioners should regularly practice pranayam-yoga as a part of their daily regime. While working in the dental profession, it is documented that dentists may undergo a lot of stress related to work. Postural, muscular problems related to neck, back, and hand movements are not so uncommon. So, it is beneficial for dental practitioners to practice pranayam-yoga which will help them to remain fit and keep calm over the years, thus imparting treatment to patients and delivering quality care

DECLARATIONS

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Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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