

# Preparedness of Interns of a Private Dental Institution to Be a Part of the Task Force in Pandemic Control - A Questionnaire Survey

**Running title:** Pandemic preparedness among dental interns

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## **Article Info**

**Volume 83**

**Page Number: 2814 – 2822**

**Publication Issue:**

**July-August 2020**

## **Article History**

**Article Received: 06 June 2020**

**Revised: 29 June 2020**

**Accepted: 14 July 2020**

**Publication: 25 July 2020**

## **Abstract:**

### **Background:**

As a normal situation of disease can take over a pandemic role and affect the population around the world, it's necessary for all the doctors and front line officers to be ready to act in case of any emergency at any time. This survey aims to assess the knowledge and attitude of interns, towards handling a pandemic situation without fear and hesitation. This online questionnaire survey containing 15 items were used among 100 interns of a private dental college in Chennai. The responses obtained were collected and tabulated in excel and then exported to SPSS, chi square test was used to check the association between gender and knowledge, knowledge and attitude. 13.0% of females had good knowledge when compared to males (4.0%) and 32.0% males had positive attitudes, when compared to 21% females. It can be concluded that a positive attitude in nearly 50% of the study population with fair to poor knowledge, might not make them competent enough in being a part of the task force. Rigorous training and stringent protocols on infection control would prepare the target population for the new normal situation arising in the world.

**Keywords** Interns, Knowledge, Pandemic, Precautions.

## **INTRODUCTION :**

A pandemic is an epidemic of an infectious disease that has spread across a large region affecting substantial numbers of people world wide (Balkhy *et al.*, 2010). A disease or condition is not a pandemic

merely because it is widespread or kills many people, it must also be infectious (Kannan *et al.*, 2017). Throughout human history there have been a number of pandemic diseases such as smallpox and TB. The fatal pandemic which is the black death known as plague which killed millions of people. No one ever

knew a virus or flu would cause a pandemic situation to the entire world (Girard *et al.*, 2010). The basic strategies in the control of an outbreak are containment mitigation and suppression. Containment may be undertaken in early stages of outbreak which includes tracing and isolating the infected to stop the disease spread (Gomersallet *al.*, 2007). When containment can no longer be managed it is then taken to the next strategy, mitigation in which measures are taken to slow down the spread of disease and mitigate its effects on society and the healthcare system. A key part of managing an infectious disease is to flatten the curve this will help in decreasing the overburdening of health resources and manpower (Brulin, 2009). Exactly this is when a varied variety of health care professionals, like the dentists, the paramedics, technicians, nurses and pharmacologists can be of great help.

Disasters constitute a significant disruption to public life. It's an event in which a society or one of its subdivisions undergoes any type of physical harm and social disruption, such that all essential functions of the society are impaired. In a disaster situation, physical and social impacts or disruptions occur because the event exceeds existing protections. Similar studies conducted by Kannan *et al.* describes the awareness of mass disaster (Kannan *et al.*, 2017) and this furthermore helps us to know the disaster management protocol. In a pandemic scenario these actions may include simpler things like a PPE to organising and decentralising a task force.

When it comes to our study population of interest, the dental college interns; they can act as very valuable resource in managing regular care services, to be an active participant in triage protocols, with adequate training. Awareness and training is pivotal for this group, as any flaw in basic knowledge have shown to increase the risk of acquiring any infection, most

particularly respiratory nature in these groups. (Health Organization, 2010).

As far as the studies on pandemic preparedness, there are studies limited to how the situation was controlled or treated, but not a prevention cause and how prepared was the country or doctors to face this kind of situation were elaborated. And also, our team had previously conducted numerous clinical trials (Khatri *et al.*, 2019; Mathew *et al.*, 2020) (Neralla *et al.*, 2019; Pavithra, Preethi Pavithra and Jayashri, 2019) and cross sectional studies (Prabakar, John and Srisakthi, 2016) (Kumar and Preethi, 2017; Kumar and Vijayalakshmi, 2017; Prabakar, John, I. Arumugham, Kumar and Srisakthi, 2018; Samuel, Acharya and Rao, 2020) in vitro studies (Prabakar, John, I. Arumugham, Kumar and Sakthi, 2018) (Harini and Leelavathi, 2019; Mohapatra *et al.*, 2019; Pratha and Prabakar, 2019) (Prabakar, John, I. M. Arumugham, *et al.*, 2018) over the past 5 years. The idea for this survey stemmed from the current interest in our community situation. So This survey was done among interns, as they are going to be the future practitioners. This will help them to develop and inculcate knowledge and on how prepared they are for pandemic conditions or patients under high risk.

## **MATERIALS AND METHODS:**

### **STUDY DESIGN:**

Cross sectional survey

### **STUDY SETTING:**

It was an online based questionnaire study that was given among interns of Saveetha Dental College, Chennai.

### **SAMPLE SIZE AND SAMPLING:**

The number of interns involved in the study were 100; the whole unit in the institution was included in the

survey and only completely filled forms were taken in for analysis.

### **SURVEY INSTRUMENT:**

A closed ended questionnaire containing three parts was prepared using Google forms. knowledge section, to assess the baseline knowledge regarding pandemic and its effects; An attitude section to assess the readiness to be a part of pandemic task force with Likert scale type of responses and finally a practice section, which assessed if they have been part of health care delivery or mitigation team during the current or any of previous pandemics. Questionnaire validation and peer evaluation was done by giving the survey to 10% of the study population. The reliability was assessed by cronbach's alpha and it was found to be satisfactory.

### **ETHICAL CLEARANCE :**

The ethical board of clearance was obtained from the scientific review board , and institution human ethics committee of saveetha university. Responding to the online form was considered to be a form of implied consent.

### **DATA COLLECTION AND STATISTICAL ANALYSIS:**

The responses were transferred to excel sheets where it was segregated and tabulated accordingly. The data was further transferred to SPSS software version 25 for statistical analysis; the independent variables included were age, gender and education . The dependent variable was knowledge attitude and practice. Chi square test was done to check association between knowledge and attitude, practice and attitude and knowledge and practice . Any p value less than 0.05 was considered significant.

### **RESULTS AND DISCUSSION:**

A total of 100 interns took part in this survey out of which males were (51) 51.0% and females were(49) 49.0%. Based on knowledge and attitude 9.0% interns who had good knowledge , 24.24% interns who had poor knowledge and 19.19% of interns who had average knowledge , had a positive attitude towards pandemic . 7.0% interns who had good knowledge , 20.20% interns who had both poor and average knowledge , had a negative attitude towards pandemic .On associating gender with knowledge , 13.0% Males had good knowledge , 24.0% interns had poor knowledge and 14.0% of the interns had average knowledge .4.0% Females had good knowledge , 20.0% of interns had poor knowledge and 25.0% of interns had average knowledge. Based on gender and attitude , 32.0% males and 21.0% females had a positive attitude and 19.0% males and 28.0% females had negative attitudes. On association between attitude and practice 29.2% interns had positive attitude and 24.2% of interns had negative attitude and they had good practice. 23.2% interns had positive attitudes and 23.23% interns had negative attitude and they had average practice

In our study, mean knowledge was 3.16 and in a study by Mehrad As Karian et.al, the mean score of knowledge was 22.6% [6] In our study, association knowledge and gender revealed, 51.0% interns belonging to age group of 22 years had good knowledge and 41.0% of them belonging to the age group of 23 years . In a study by Mahrad Askarian et.al, correlation of age and knowledge showed significant positive linear value  $P < 0.001$  and practice coefficient of  $P < 0.002$ . [6]. In this study knowledge, attitude mean score was 3.16, attitude and practice mean score was 2.37 and knowledge and practice score was 2.42. In a study by Jonathan fap et.al and practice mean was 0.12 and knowledge and practice was 0.27.(7) . Among various associations tested, the knowledge and attitude was found to be significantly

different between the two genders; whereas there was no association between the knowledge regarding pandemic and attitude towards being in the task force.

In our study 22.0% of females had good knowledge and 12.0% of male had good knowledge. In a study by RR-Jha, 50.07% males had good knowledge and 54.12% of females had good knowledge, the difference in knowledge could be due to the extra training or the curriculum being more inclusive regarding pandemic mitigation activities.(8) In our study 34.0% interns had good knowledge irrespective of age and gender. In another study by BilkishNabilal et.al the interns (91.84%) had better knowledge (9); which again implies, it's time to improve our curriculum and training approach among the target population, which can act as a potential task force if trained properly.

In our study 19.0% of interns said that they were prepared for a pandemic task force and 27.0% of them believed they were not prepared for a pandemic plan or to be part of triage activity, this was different from results of the study by PaymanSalamatati et.al 84.2% interns believed that they were not ready for pandemic preparations (10). The study included a large sample, rather the whole unit of a private dental institution, even then the data is just a pilot effort and needs to be continued with a larger population in the same geographical area; that is by including more institutions so that meaningful comparisons can be made.

## CONCLUSION:

From the above results we can conclude that males had better knowledge regarding various aspects of a pandemic and better attitude towards being in the task force when compared to females. Their practice exposure or skills during testing times like these was

found to be fair, which can be improved with further training and continuing education. Few interns were prepared to be a part of the task force and a majority were doubtful due to lack of knowledge regarding pandemic. A multidisciplinary training for this target population would ensure adequate training and confidence is gained to be a part of the task force.

## AUTHORS CONTRIBUTION

Reshmi has contributed to the data collection, study design, analysis, results, tables and manuscript preparation.

Dr. Sri Sakthi has contributed to the design of the study, analysis of the data, results and manuscript preparation and proofreading of the manuscript.

Dr. Arvind has contributed to reviewing the article.

## CONFLICTS OF INTEREST:

The research projects are self funded and are not sponsored or aided by third parties . there is no conflict of interests

## REFERENCES:

1. Balkhy, H. H. *et al.* (2010) 'Awareness, attitudes, and practices related to the swine influenza pandemic among the Saudi public', *BMC infectious diseases*, 10, p. 42.
2. Brulin, E. (2009) *Consequences and preparedness of pandemic influenza, a national concern : A study of the effect of the Asian Flu on the Swedish military*. diva-portal.org. Available at: <http://www.diva-portal.org/smash/record.jsf?pid=diva2:134338> (Accessed: 11 June 2020).
3. Girard, M. P. *et al.* (2010) 'The 2009 A (H1N1) influenza virus pandemic: A review',

- Vaccine, pp. 4895–4902. doi: 10.1016/j.vaccine.2010.05.031.
4. Gomersall, C. D. *et al.* (2007) ‘Pandemic preparedness’, *Current opinion in critical care*, 13(6), pp. 742–747.
  5. Harini, G. and Leelavathi, L. (2019) ‘Nicotine Replacement Therapy for Smoking Cessation- An Overview’, *Indian Journal of Public Health Research & Development*, p. 3588. doi: 10.5958/0976-5506.2019.04144.5.
  6. Health Organization, W. (2010) ‘Public health measures taken at international borders during early stages of pandemic influenza A (H1N1) 2009: preliminary results: Background’, *Weekly Epidemiological Record*. apps.who.int. Available at: [https://apps.who.int/iris/bitstream/handle/10665/241567/WER8521\\_186-195.PDF](https://apps.who.int/iris/bitstream/handle/10665/241567/WER8521_186-195.PDF).
  7. Kannan, S. S. D. *et al.* (2017) ‘AWARENESS AND ATTITUDE TOWARDS MASS DISASTER AND ITS MANAGEMENT AMONG HOUSE SURGEONS IN A DENTAL COLLEGE AND HOSPITAL IN CHENNAI, INDIA’, in *Disaster Management and Human Health Risk V. DISASTER MANAGEMENT 2017*, Southampton UK: WIT Press (WIT Transactions on The Built Environment), pp. 121–129.
  8. Khatri, S. G. *et al.* (2019) ‘Retention of moisture-tolerant fluoride-releasing sealant and amorphous calcium phosphate-containing sealant in 6-9-year-old children: A randomized controlled trial’, *Journal of the Indian Society of Pedodontics and Preventive Dentistry*, 37(1), pp. 92–98.
  9. Kumar, R. P. and Preethi, R. (2017) ‘Assessment of Water Quality and Pollution of Porur, Chembarambakkam and Puzhal Lake’, *Research Journal of Pharmacy and Technology*. A & V Publications, 10(7), pp. 2157–2159.
  10. Kumar, R. P. and Vijayalakshmi, B. (2017) ‘Assessment of fluoride concentration in ground water in Madurai district, Tamil Nadu, India’, *Research Journal of Pharmacy and Technology*. A & V Publications, 10(1), pp. 309–310.
  11. Mathew, M. G. *et al.* (2020) ‘Evaluation of adhesion of Streptococcus mutans, plaque accumulation on zirconia and stainless steel crowns, and surrounding gingival inflammation in primary molars: randomized controlled trial’, *Clinical oral investigations*. doi: 10.1007/s00784-020-03204-9.
  12. Mohapatra, S. *et al.* (2019) ‘Assessment of Microhardness of Enamel Carious Like Lesions After Treatment with Nova Min, Bio Min and Remin Pro Containing Toothpastes: An in Vitro Study’, *Indian Journal of Public Health Research & Development*. Prof.(Dr) RK Sharma, 10(10), pp. 375–380.
  13. Neralla, M. *et al.* (2019) ‘Role of nutrition in rehabilitation of patients following surgery for oral squamous cell carcinoma’, *International Journal of Research in Pharmaceutical Sciences*. International Journal of Research in Pharmaceutical Sciences, Sponsored by JK Welfare &Pharmascope Foundation, 10(4), pp. 3197–3203.
  14. Pavithra, R. P., Preethi Pavithra, R. and Jayashri, P. (2019) ‘Influence of Naturally Occurring Phytochemicals on Oral Health’, *Research Journal of Pharmacy and Technology*, p. 3979. doi: 10.5958/0974-360x.2019.00685.1.
  15. Prabakar, J., John, J., Arumugham, I., Kumar, R. and Srisakthi, D. (2018) ‘Comparative evaluation of retention, cariostatic effect and discoloration of conventional and hydrophilic sealants - A single blinded randomized split mouth clinical trial’, *Contemporary Clinical Dentistry*, p. 233. doi:

- 10.4103/ccd.ccd\_132\_18.
16. Prabakar, J., John, J., Arumugham, I. M., *et al.* (2018) ‘Comparative Evaluation of the Viscosity and Length of Resin Tags of Conventional and Hydrophilic Pit and Fissure Sealants on Permanent Molars: An In vitro Study’, *Contemporary clinical dentistry*. ncbi.nlm.nih.gov, 9(3), pp. 388–394.
17. Prabakar, J., John, J., Arumugham, I., Kumar, R. and Sakthi, D. (2018) ‘Comparing the effectiveness of probiotic, green tea, and chlorhexidine- and fluoride-containing dentifrices on oral microbial flora: A double-blind, randomized clinical trial’, *Contemporary Clinical Dentistry*, p. 560. doi: 10.4103/ccd.ccd\_659\_18.
18. Prabakar, J., John, J. and Srisakthi, D. (2016) ‘Prevalence of dental caries and treatment needs among school going children of Chandigarh’, *Indian journal of dental research: official publication of Indian Society for Dental Research*, 27(5), pp. 547–552.
19. Pratha, A. A. and Prabakar, J. (2019) ‘Comparing the effect of Carbonated and energy drinks on salivary pH-In Vivo Randomized Controlled Trial’, *Research Journal of Pharmacy and Technology*. A & V Publications, 12(10), pp. 4699–4702.
20. Samuel, S. R., Acharya, S. and Rao, J. C. (2020) ‘School Interventions-based Prevention of Early-Childhood Caries among 3-5-year-old children from very low socioeconomic status: Two-year randomized trial’, *Journal of public health dentistry*, 80(1), pp. 51–60.

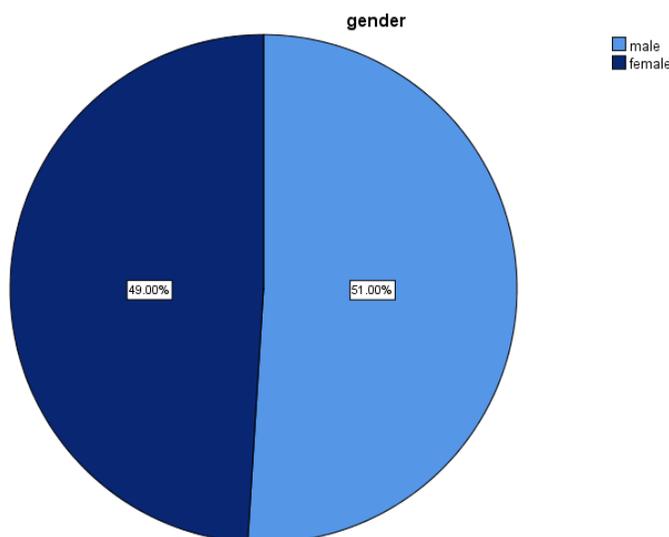


Figure 1 represents the study population based on gender, 49.0% were females( dark blue) and 51.0% were males(light blue). From this study we can infer that males were high when compared to females.

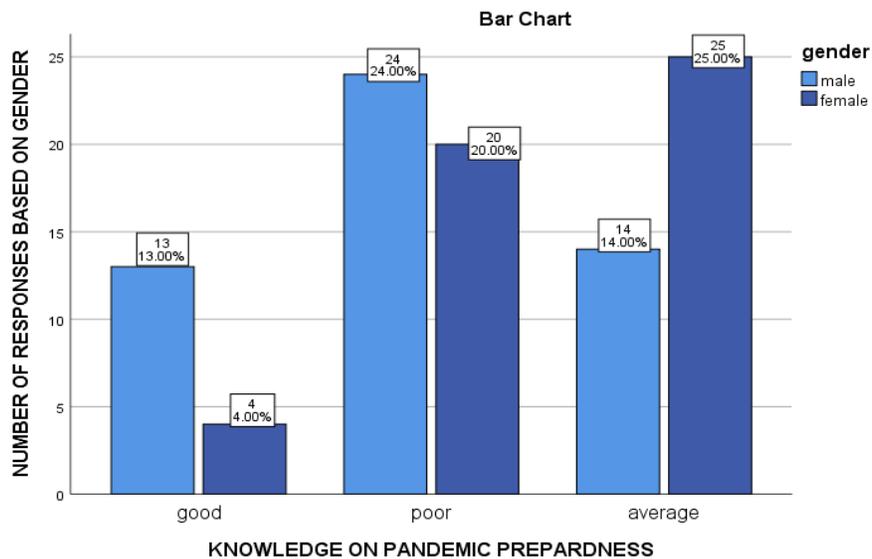


Figure 2: This bar chart depicts the association between gender and knowledge of dental interns. X-axis represents the knowledge of interns and Y-axis represents the number of responses based on gender. Majority of the males (light blue) (24%) had only poor knowledge, whereas Majority of females (dark blue) (25%) had average knowledge regarding pandemic. A chi square between gender and knowledge was done and it was statistically significant, proving females had an overall better knowledge in the subject than males. (df = 2, p = 0.017, statistically significant)

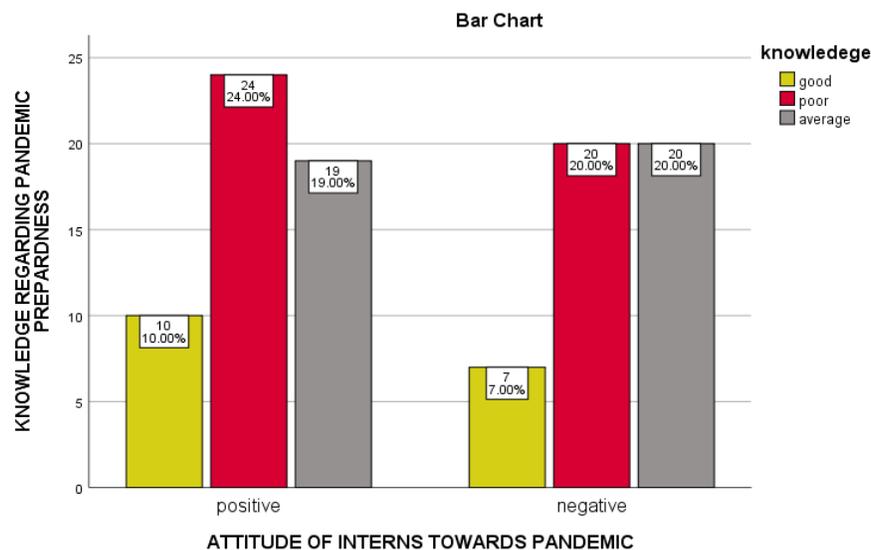


Figure 3: Bar chart depicts the association of knowledge and attitude of dental interns towards being in a pandemic task force. X-axis represents the attitude of interns and y-axis represents the knowledge of the study population. On the whole 9.09% of interns who had good knowledge about pandemic, 24.4% of interns who had poor knowledge (poor) on pandemic had positive attitudes towards pandemic. Chi square test between knowledge attitude was done and it was statistically not significant, implying knowledge regarding pandemic

preparedness did not have any effect on their willingness to serve the community. (df=2,  $p = 0.756 > 0.05$  statistically not significant)

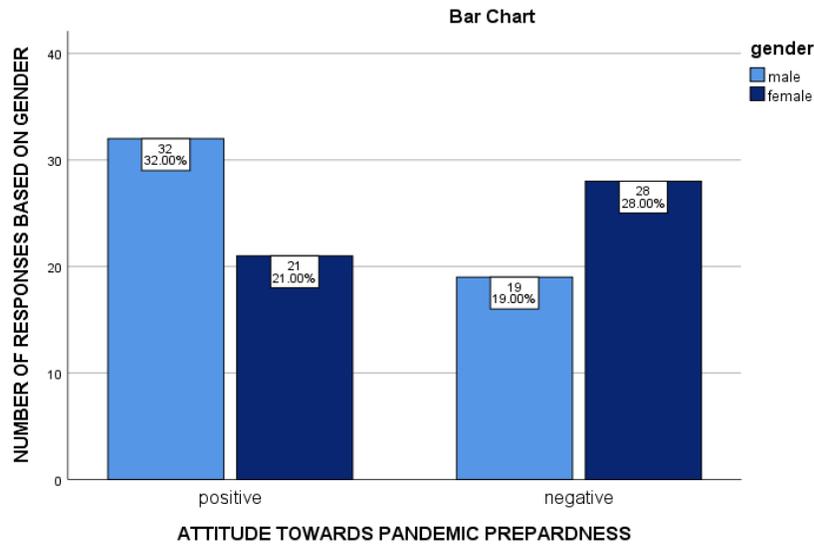


Figure 4 : A multiple bar chart showing attitude of dental interns based on gender. X-axis represents the attitude of interns and Y-axis represents the number of responses based on gender. Majority of the males (32%) had a positive attitude towards being in the pandemic task force. A chi square test was done to check the difference in attitude between genders (df =1,  $p = 0.036$ , statistically significant) and it was found to be statistically significant. Proving that the difference in attitude levels between the two genders was truly significant.

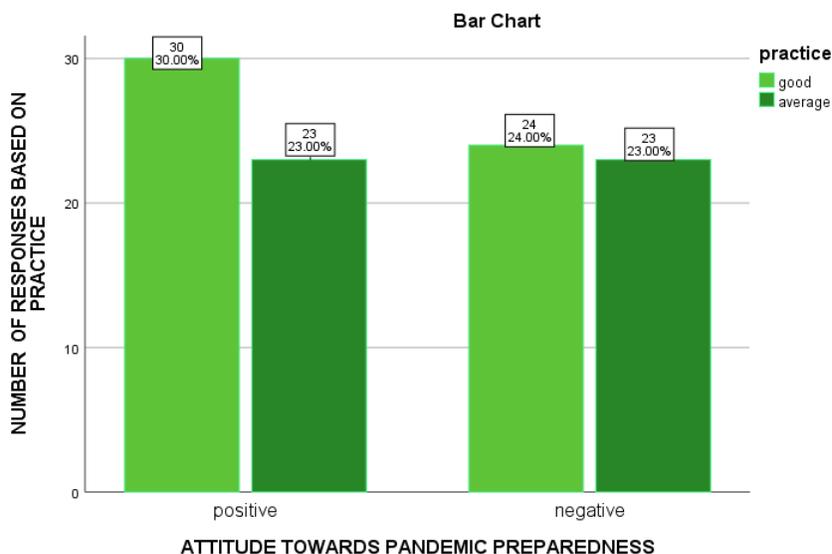


Figure 5 : A multiple bar chart shows the association between practices followed during pandemic preparedness and attitude of dental interns on how to deal with pandemic situations. X axis represents the attitude of interns and Y axis represents the number of responses based on practices. Interns who had good

practice had a high positive attitude towards pandemic preparedness, which formed the majority. Interns who had average practice had both positive and negative attitudes towards pandemic preparedness. A chi square test was done and it was found that a statistically not significant association was found between attitude and practice .(df=1, p= 0.362, statistically insignificant)

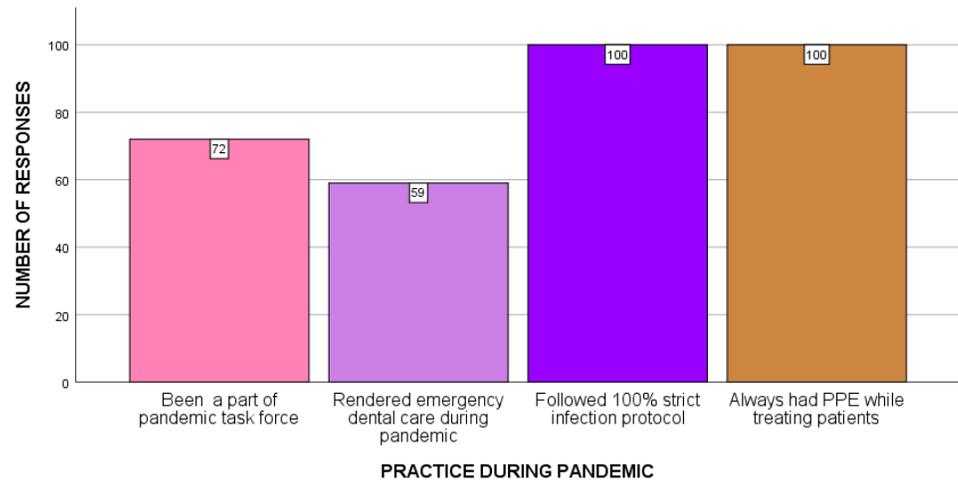


Figure 6: A simple bar chart representing the practice of dental interns during pandemic . X axis represents the practices among study population during pandemic and Yaxis represents the number of responses . 72.0% of them were a part of the pandemic task force and 59.0% of them rendered emergency dental treatment during pandemic. All the interns (100%) followed strict infection protocol and always wore PPE while treating patients.