

## An Insight into the Forensic Cognizance among Advocates

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**Abstract:** **Aim:** The study aims to assess the awareness of forensic dentistry among advocates and their participation in any case involving forensic dentistry. **Methodology:** A cross-sectional study among 200 advocates classified under years of experience and place of practice. Ethical Approval was given from the Institutional Review Board of SRM Dental College, Ramapuram, after explaining the study completely. The Pearson's Chi Square was used to assess the association between certain data and the p-value was set at 0.05. **Results:** Majority of the advocates were aware of bite mark analysis in all the groups of years of experience which increased with increase in years of experience with almost 66% of the advocates with 35-41 years of experience. Advocates with the superlative years of experience were furthermore aware of both rugae and lip mark analysis when equated to the other groups. **Conclusion:** The inclusion of Forensics as a part of curriculum or as an extra short interval course could benefit both the Lawyers and the general public so as to bring about justice in most of the cases.

**Keywords:** Forensics, Advocates, Cognizance, Forensic dentistry, Experience

Date of Submission: 14-05-2018

Date of acceptance: 29-05-2018

### I. Introduction

Physical evidence cannot be intimidated. It does not forget. It sits there and waits to be detected, preserved, evaluated and explained -Herbert Leon MacDonnell. Forensic dentistry or forensic odontology was defined by Keiser -Neilson in 1970, as the branch of forensic medicine which in the interest of justice deals with the proper handling and examination of dental evidence and with the proper evaluation and presentation of the dental findings<sup>1</sup>. Forensic dentistry is an imminent wing in the field of forensics and that is forthwith being comprehensively exploited in deciphering innumerable criminal and civil cases. Forensic dentistry encompasses an integrative team comprising of dentists, police force and the advocates.

An individual's proof of identity either alive or dead endures to be the utmost decisive part of our society and all through the world. Aided with bite mark, rugae pattern, DNA and lip marks analysis forensic dentists are bending over backwards to decipher many ambiguous cases.

The first evidence of bite mark precedes to the stretch of Adam and Eve at the Garden of Eden where Adam persuaded Eve to establish a bite mark on the apple. The statement affirms, "It is always tempting to suggest that the history of bite mark evidence (forensic dentistry) began with the eating of forbidden fruit in the Garden of Eden"<sup>2</sup>. The purpose of forensic dentistry is as crucial as it has its own advantages. Though morphologically the teeth are almost identical they are one of the most indestructible part of the human body. This was evidenced by the teeth recognized in the mandible of Tabun man for aged about 35,000 years old<sup>3</sup>. While the remnants of the body can be charred at 600 degrees, the teeth can be devastated at nothing below 1000 degrees<sup>4</sup>.

Further forensic dentistry by the same token has deciphered many cases that had been substantiated as challenging. Even the figure of Adolf Hitler was recognized by means of the unfamiliar metal bridge that was designed for him by his dentist Blaschke antecedently to the war<sup>5</sup>.

Like the minute details of our fingers and the deoxyribonucleic acid the codes our lives are unique to each person, the dentition and its associated structures are also idiosyncratic. This outstanding character of teeth steered to the development of a branch called forensic dentistry.

Forensic dentistry is a benediction in our lives and it has helped in solving many ambiguous cases. The law and science are bizarre bedfellows. Science is an empirical method of enlightenment, anchored to the

principles of observation and discovery<sup>6</sup>. While the law contributes the justice for these observations and discoveries, Justice does not only require the law, but it can be achieved with the help of a system consisting of advocates to prove, jury to judge and laws to decide.

Law state “loss or fracture of tooth is a grievous injury” under IPC 320 clause 7. Thus it is used in other crimes involving mortal combats. It is also used in civil cases exclusively in insurance claims and in proof of identity of the legatee in case of any fraudulence. Above all, the court of law consents the statement of dentists as a proficient witness in medicolegal cases.

Selvajothi et al studied the awareness of forensic odontology among legal professionals in Chennai<sup>7</sup>. But in contrary, the present study includes advocates in Chennai, Trichy and Salem.

Forensic dentistry plays a vital role in human identification and solving various crimes in today’s world. Advocates and police officers play a foremost part in investigations, deciphering crimes and seeking apposite justice for people thereupon they need to be cognizant of the ideologies and methods used in forensic dentistry. Hence the following study aims to assess the awareness of forensic dentistry among advocates and their participation in any case involving forensic dentistry.

## II. Material and Methods

This is a cross sectional descriptive study conducted over a period of three months (August to October, 2017). To assess the knowledge, awareness and practical application of forensic dentistry among the advocates practicing in Tamilnadu.

Simple random sampling procedure was used and the advocates in this study were recruited from the places of Chennai (n=117), Trichy (n=20) and Salem (n=63). A pretested questionnaire consisting of 10 questions were circulated to a population of 200 advocates and the data was collected. The data was then categorized based on their years of experience and place of practice.

The questions were mainly based on the role of forensic dentistry in medico legal cases. It was prepared and given to advocates to analyze their knowledge about forensic dentistry and also to understand if they had presented any medicolegal cases involving forensic dentistry. Ethical Approval was given from the Institutional Review Board of SRM Dental College, Ramapuram, after explaining the study completely. The Pearson’s Chi Square was used to assess the association between certain data and the p-value was set at 0.05.

## III. Result

The study was done to analyze the awareness of forensic dentistry among advocates in Tamil Nadu. The study was directed in three different cities including Chennai, Trichy and Salem. The data collected was categorized based on years of experience and place of practice.

### Based on Years of Experience:

**Table 1: Descriptive statistics**

Group	Number	Mean Years	SD Age	Min Years	Max Years
0-5 years	50	3.09	0.20	1	5
6-35years	141	14.55	0.55	6	35
36-41years	9	38.88	0.56	37	41

Table 1 shows that out of the 200 advocates 50 had 0-5 years of experience; 141 advocates had 6-35 years of experience and 9 had 36-41 years of experience. The minimum and maximum years of experience were 1 year and 41 years respectively.

### Question 1: Forensic dentistry is used as a tool of investigation

Since everyone answered affirmatively to this particular question, the chi square and the p value could not be obtained.

**TABLE 2: Dental identification remains as one of the most reliable modes of investigation.**

Options	Years Of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	40	135	8	183	11.847	0.003
Not sure	0	0	0	0		
No	10	6	1	17		
<b>Total</b>	50	141	9	200		

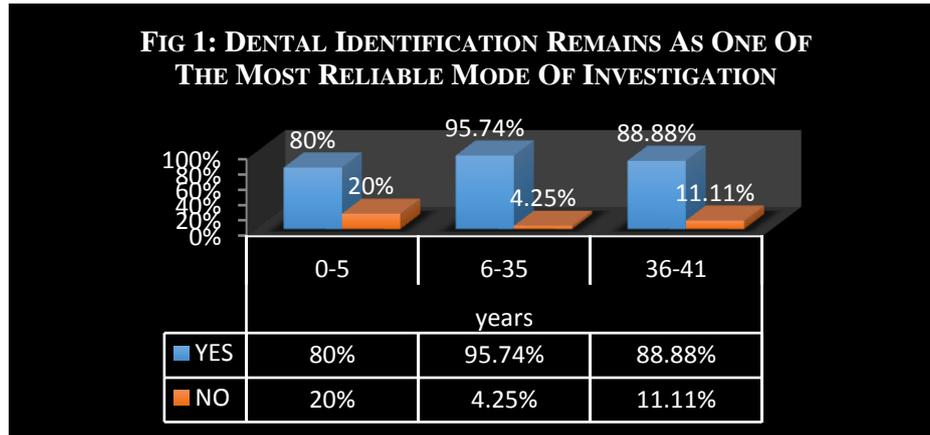
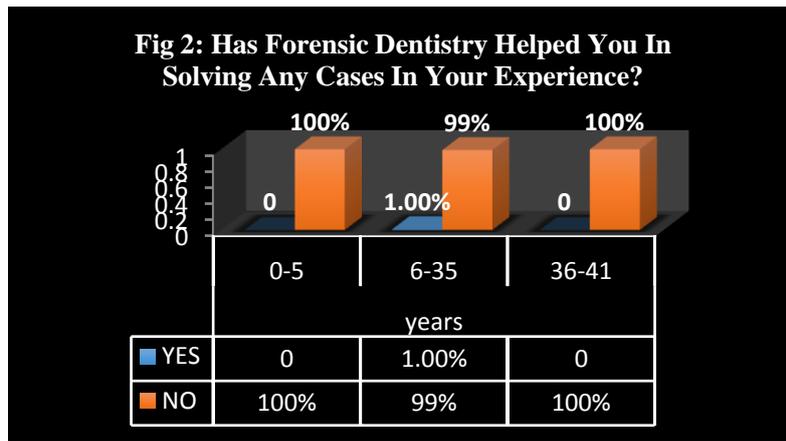


Table 2 and fig 1 shows the number of advocates who believe that dental identification remains as one of the most reliable mode for investigation. Among the advocates who have 0-5 years of experience 80% have answered affirmatively. As their years of experience increases i.e., among advocates with 6-35 years of experience 95% believe that forensic dentistry is a reliable mode for investigation. While 88% of advocates with 36-41 years of experience consider forensic dentistry as a reliable method for investigation. The Pearson’s chi square showed a statistically significant result with a p-value of 0.003.

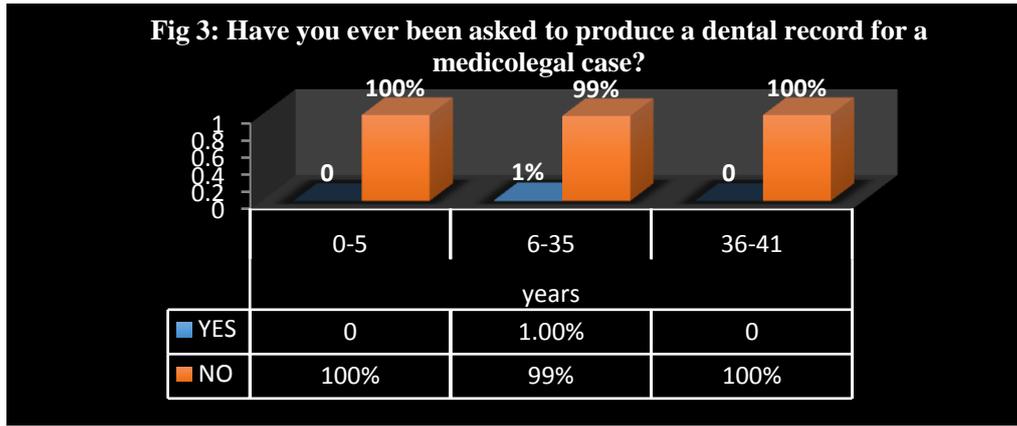
**TABLE 3: Has forensic dentistry helped you in solving any cases in your experience?**

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	0	1	0	1	0.421	0.81
No	50	140	9	199		
Total	50	141	9	200		



**Table 4: Have you ever been asked to produce a dental record for a medicolegal case?**

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	0	1	0	1	0.421	0.81
No	50	140	9	199		
Total	50	141	9	200		



Questions 3 and 4 are correlated. Only when one had done a case involving forensic dentistry that he would have affirmed a dental record. Advocates tend to get cases reliant upon their talent revelation and of course their years of experience. Table 3 and fig 2 shows that only one advocate among the 200 advocates studied has done a case involving forensic dentistry. Table 4 and fig 3 tells that only that advocate who has done a case involving forensic dentistry has produced a dental record in court. The chi square value for both the questions was 0.421 with an insignificant p value.

**Table 5:** the court of law accepts the statement of dentists as expert witness involving civil and criminal cases

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	10	101	8	119	46.068	0.000
Not sure	28	23	1	52		
No	12	17	0	29		
Total	50	141	9	200		

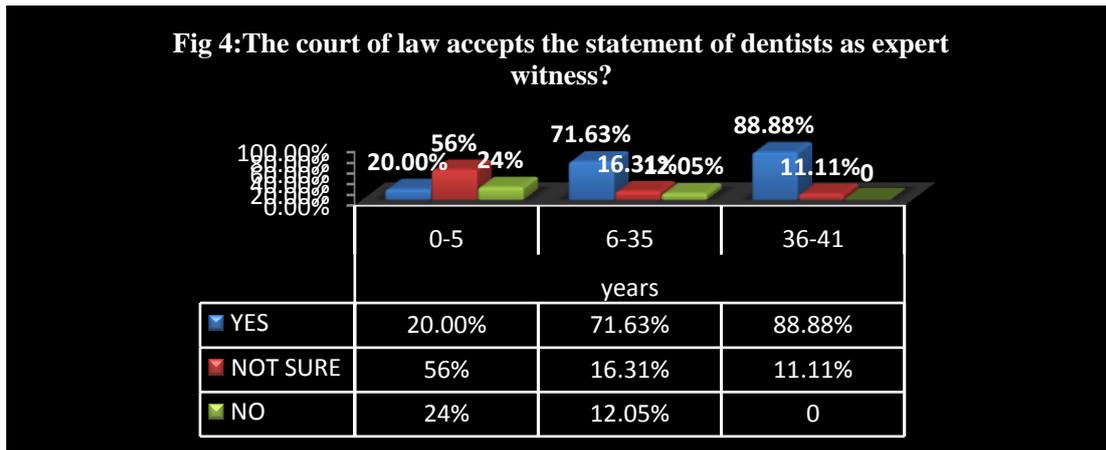


Table 5 and fig 4 shows that 20%, 71.63% and 88.88% of advocates with years of experience 0-5 years, 6-35 years and 36-41 years respectively are aware that the statement of dentist is considered to be an expert witness. 56 %, 16 % and 11 % of advocates with years of experience 0-5 years, 6-35 years and 36-41 years are not sure. The rest have answered negatively to the question put forth. This shows that as years of experience increases advocates strongly believe that statement of a dentist is considered as an expert witness. The chi square value obtained was 46.068 with a significant p value.

**TABLE 6: Loss or fracture of tooth is a grievous injury under IPC 320 clause 7**

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	12	91	8	111	32.527	0.000
Not sure	25	24	1	50		
No	13	26	0	39		
Total	50	141	9	200		

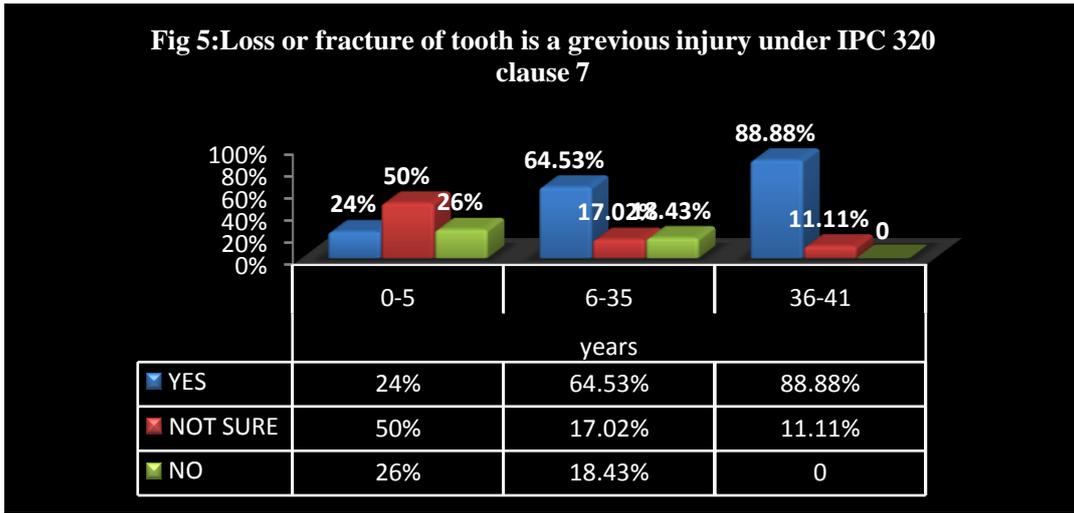


Table 6 and fig 5 shows that maximum number of advocates i.e., 88% with years of experience 36-41 are aware of IPC 320 clause 7 while only 64 % were aware in the age group 6-35 years. Only 24% of advocates with years of experience 0-5 are aware of the law. In this particular group more number of advocate (50%) are not aware of the clause. The Pearson’s chi square showed a statistically significant association with the p value of 0.000.

**Question 7: do you generally maintain dental records for your cases?**

Since majority of the population have not handled a case involving forensic dentistry they did not have the opportunity of maintain dental record.

**TABLE 7: For how long do you think dental records are being maintained by dentists?**

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Up to 5 years	1	12	0	13	15.826	0.045
5-10 years	2	13	1	16		
More than 10 years	1	17	1	19		
Lifetime	0	8	1	9		
Not aware	46	91	6	143		
Total	50	141	9	200		

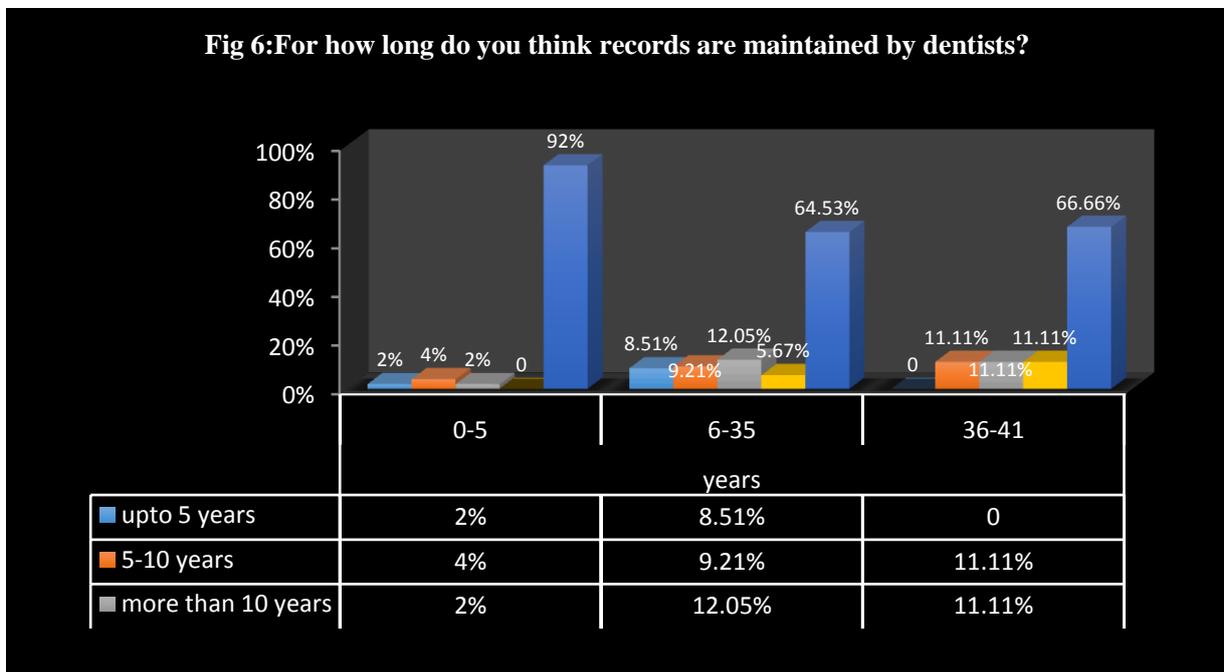


Table 7 and fig 6 shows that majority of the advocates were not aware as to how long a dentist maintain dental records. The maximum number of remaining advocates answered that a dentists maintain dental records for 5-10 years and more than 10 years.

**TABLE 8: Has forensic dentistry been used in the identification of mass disaster victims?**

Options	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Yes	7	71	2	80	32.527	0.000
Not sure	28	52	3	83		
No	15	18	4	37		
Total	50	141	9	200		

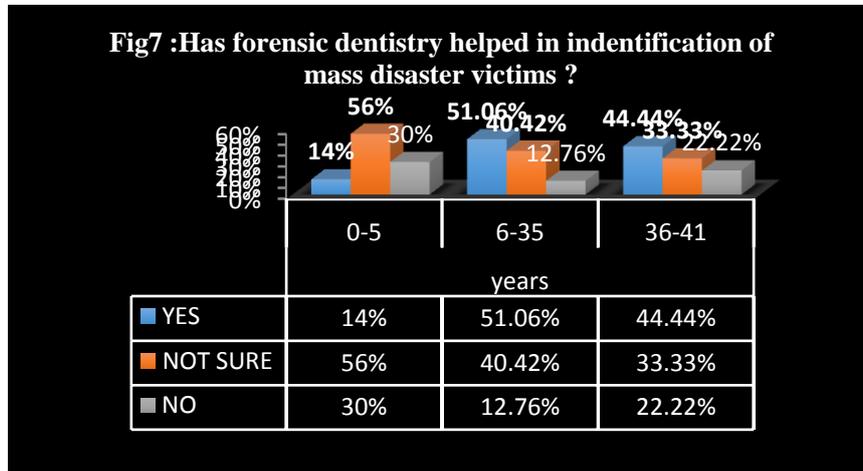


Table 8 and fig 7 shows that among advocates with minimal years of experience 14% have answered positively while majority of the advocates were not aware. while as the years of experience increases , i.e., advocates with years of experience between 6-41 years were sure that forensic dentistry was used in the identification of mass disaster victims such as tsunami earthquakes etc.,. The Pearson’s chi square showed a statistically significant association with the p value of 0.000.

**TABLE 9: Are you aware of a) lip mark analysis b) rugae pattern c) bite mark analysis**

Number of advocates who have are aware of the above mentioned methods of identification.

Methods of Identification	Years of Experience			Total	Chi Square Value	P Value
	0-5 years	6-35 years	36-41 years			
Lip Mark Analysis	3	50	5	58		0.000
Rugae Pattern	4	58	5	67		
Bite Mark Analysis	14	89	6	109		

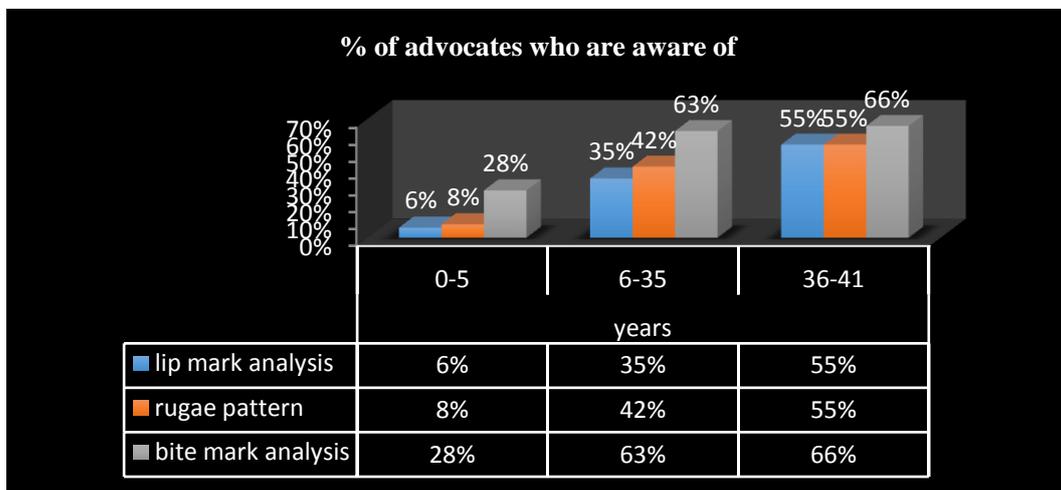


Table 10 and fig 8 shows the number and percentage of advocates who are aware of the methods of identification used in forensic dentistry. They reveal that majority of the advocates in each group are aware of

bite mark analysis. But as their years of experience increases they are also aware of rugae pattern and lip mark analysis. The P value obtained was significant.

#### **IV. Discussion**

Forensic dentistry has metamorphosed to be an advantage in our lives. In consideration of the prevailing concern with aggregate number of murders and sexual pummeling with no morsel of humanity lingering in people. Forensic dentistry plays a very decisive role in transporting the remorseful to light. Accomplishment of justice to the victim is one of the most imperative roles that an advocate has to embrace. So he must be cognizant of the identification ways and means used in forensic dentistry in cases where there are evidences left behind interrelated to dentition. This study was done to gauge the awareness of forensic dentistry among advocates. Awareness of forensic science, let so far as possible, forensic dentistry is obligatory when concerned to law.

In a study by D.Devok et al on the capricious assessment of legal practitioners on the requisite of forensic medicine in the midst of legal professionals, it was clinched that 95% (83 persons) countered that knowledge in concern to forensic medicine is obligatory for their practice as jurists<sup>8</sup>.

In the present study a total of 200 advocates participated. The results collected were regarded as based on years of experience and place of practice. The minimum year of experience was 1 year and the maximum was 41 years. On the whole it was classified as 1-5 years; 6-35 years and 36-41 years.

From the data collected, majority of the advocates were aware of bite mark analysis in all the groups of years of experience which increased with increase in years of experience with almost 66% of the advocates with years of experience 35-41 were aware of bite mark analysis. In the same age group, specifically, advocates with the superlative years of experience were furthermore aware of both rugae and lip mark analysis when equated to the other groups.

In a formerly conducted study on the awareness of forensic dentistry among legal professionals in Chennai, India also portrayed similar results. The study reported that Lawyers further than 40 years of experience were more aware of palatal rugae analysis and those alongside of more than 20 years were aware of lip print and bite mark analysis and utmost of the advocates were aware of bite mark analysis<sup>7</sup>. In that previously conducted study 200 advocates partook, of which 77% of the lawyers had practice less than 20 years, and 23% had experience more than 20 years. While in the present study the entire study population was classified based on years of experience. 25 % had 0-5 years of experience, 70% had 6-41 years of experience while the remaining 5% had 36-41 years of experience.

#### **V. Conclusion**

This study is about the priority that is given to forensics among the Lawyers as it becomes the deciding part of the most of the crimes. The inclusion of Forensics as a part of curriculum or as an extra short interval course could benefit both the Lawyers and the general public so as to bring about justice in most of the cases.

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Dr.Varsha Bhaskar et al"An Insight into the Forensic Cognizance among AdvocatesIOSR  
Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 5, 2018, pp 16-22.