

# Internet Usage to Access Oral Health Related Information by Patients Reporting to Our Institution- A Cross Sectional Study

S. Kiran Kumar<sup>1</sup>, Kirthana Somasundaram<sup>1</sup>, M. Keerthana<sup>1</sup>, R. Kiruthiga<sup>1</sup> and Maya Ramesh<sup>2\*</sup>

<sup>1</sup>Interns; <sup>2</sup>Reader, Department of Oral Pathology, Vinayaka Missions Sankarachariyar Dental College, Salem – 636308, Tamil Nadu, India; mayaramesh96@gmail.com

Date of Receiving: July 2017

Date of Submission: Oct 2017

Date of Acceptance: Nov 2017

## Abstract

**Introduction:** Widespread internet usage worldwide allows increased access to medical and dental information and can be used for patient self-education. **Materials and Methods:** Patients who were reported to the Department of Oral Medicine of Vinayaka Missions Sankarachariyar Dental College were involved in the present study. Institutional Ethical clearance was obtained. Consent was obtained from all the participants and a Questionnaire was given to all the participants. The participants were given a list of predetermined responses to choose their answer. **Results:** Results were calculated. Statistical analysis was done using Chi square test and p value was calculated. **Conclusion:** We may conclude that creating awareness amongst people of different educational backgrounds through appropriate means (following an individualized approach based on educational qualification) would increase internet usage for acquiring information on oral health.

**Keywords:** Dentistry, Internet Usage, Oral Health Information, Survey

## 1. Introduction

Wide spread internet usage worldwide allows increased access to medical and dental information and can be used for patient self-education. However, there is little evidence about how the internet is impacting dentistry. This survey was conducted to determine how dental patients in the Department of Oral Medicine of Vinayaka Missions Sankarachariyar Dental College, use it as a source of information on oral health and to discover how it affects oral hygiene practices of patients.

## 2. Materials and Methods

Patients who were reported to the Department of Oral Medicine of Vinayaka Missions Sankarachariyar Dental College were involved in the present study. Institutional Ethical clearance was obtained. Consent was obtained

from all the participants and a Questionnaire was given to all the participants. The participants were given a list of predetermined responses to choose their answer.

Sample size was calculated as 60. Persons involved in the study were divided into three groups. Persons with no formal education, persons with education below 10th standard and persons who have attended college were the three different groups and there were 20 in each group.

## 3. Aim and Objectives

- To assess the awareness about internet and social media among patients reporting to our institution.
- To assess the frequency, purpose and benefit of internet usage on oral health related information.
- Frequency of dental visits of the patients.
- To identify the mode of taking appointment for dental visit.

- To assess the sources of information about oral health related information.
- To correlate Age, Sex, Location and the educational status among the internet users.

### 3.1 Inclusion Criteria

Subjects who are willing to participate in the study was the inclusion criteria. Persons of both sexes between 20 to 60 years were included. Mentally retarded patients, medically compromised patients and children were excluded.

Uneducated group had persons who have never attended school. Criteria for the group of basic education was tenth standard and that of highly educated was those who have attended college.

#### QUESTIONNAIRE

- 1) NAME:
- 2) AGE:
- 3) SEX: M / F
- 4) PLACE: Rural / City
- 5) EDUCATIONAL STATUS: No formal education / below 10th standard / Attended College

- 6) Do you have internet knowledge and have ever used internet? Yes/No
- 7) Purpose for which you use internet. E-mail / Whatsapp / Facebook / Google / All of these
- 8) Do you use internet for medical and dental purpose? Yes / No
- 9) When you or your family member experience a dental pain, what will you do?  
Visit a dentist / Go to medical shop / Search about in on the internet for drug
- 10) How often do you visit a dentist? Once in 6 months / Once in an year / Rarely
- 11) How do you make an appointment with your dentist? Phone calls / Online booking / Go without an appointment
- 12) Have you ever felt that the information from the internet is different from the ones given by the dentist? Yes / No
- 13) Is the information gained from the internet regarding dental problems beneficial to you in anyway? Yes / No

### 3.2 Statistical Analysis

**TABLE 1.** When the purpose of internet usage was compared with age, place and educational status using Chi square test, it was found to be highly significant and with sex it was not significant

|                    |                     | Purpose for which use internet |           |           |           |          |          | Total     | Chi square | p         |
|--------------------|---------------------|--------------------------------|-----------|-----------|-----------|----------|----------|-----------|------------|-----------|
|                    |                     | Never                          |           | Google    |           | Whatsapp |          |           |            |           |
|                    |                     | N                              | %         | N         | %         | N        | %        |           |            |           |
| Age                | Up to 25            | 3                              | 14        | 18        | 82        | 1        | 5        | 22        | 32.81      | < 0.001** |
|                    | 26 - 35             | 4                              | 25        | 10        | 63        | 2        | 13       | 16        |            |           |
|                    | 36 - 45             | 4                              | 57        | 2         | 29        | 1        | 14       | 7         |            |           |
|                    | Above 45            | 15                             | 100       |           |           |          |          | 15        |            |           |
| Sex                | Male                | 13                             | 38        | 19        | 56        | 2        | 6        | 34        | 1.09       | 0.581     |
|                    | Female              | 13                             | 50        | 11        | 42        | 2        | 8        | 26        |            |           |
| Place              | City                | 3                              | 11        | 22        | 79        | 3        | 11       | 28        | 22.75      | < 0.001** |
|                    | Rural               | 23                             | 72        | 8         | 25        | 1        | 3        | 32        |            |           |
| Educational Status | No Formal Education | 20                             | 100       |           |           |          |          | 20        | 46.15      | < 0.001** |
|                    | Below 10th standard | 5                              | 25        | 15        | 75        |          |          | 20        |            |           |
|                    | Attended College    | 1                              | 5         | 15        | 75        | 4        | 20       | 20        |            |           |
| <b>Total</b>       |                     | <b>26</b>                      | <b>43</b> | <b>30</b> | <b>50</b> | <b>4</b> | <b>7</b> | <b>60</b> |            |           |

**Table 2.** When the number of visits of patients to dentist was compared with age, place and educational status using Chi square test, it was found to be significant and with sex it was found to be not significant

|                    |                     | How often do you visit a dentist |           |           |           |                  |           |                 |          |           |          | Total     | Chi square | P       |
|--------------------|---------------------|----------------------------------|-----------|-----------|-----------|------------------|-----------|-----------------|----------|-----------|----------|-----------|------------|---------|
|                    |                     | Never                            |           | Rarely    |           | Once in 6 months |           | Once in a month |          | Regularly |          |           |            |         |
|                    |                     | N                                | %         | N         | %         | N                | %         | N               | %        | N         | %        |           |            |         |
| Age                | Up to 25            | 4                                | 18        | 10        | 45        | 7                | 32        | 1               | 5        |           |          | 22        | 21.80      | 0.040*  |
|                    | 26 - 35             | 1                                | 6         | 6         | 38        | 4                | 25        | 4               | 25       | 1         | 6        | 16        |            |         |
|                    | 36 - 45             | 2                                | 29        | 3         | 43        | 1                | 14        |                 |          | 1         | 14       | 7         |            |         |
|                    | Above 45            | 6                                | 40        | 9         | 60        |                  |           |                 |          |           |          | 15        |            |         |
| Sex                | Male                | 9                                | 26        | 12        | 35        | 8                | 24        | 4               | 12       | 1         | 3        | 34        | 4.64       | 0.326   |
|                    | Female              | 4                                | 15        | 16        | 62        | 4                | 15        | 1               | 4        | 1         | 4        | 26        |            |         |
| Place              | City                | 3                                | 11        | 9         | 32        | 10               | 36        | 5               | 18       | 1         | 4        | 28        | 17.49      | 0.002** |
|                    | Rural               | 10                               | 31        | 19        | 59        | 2                | 6         |                 |          | 1         | 3        | 32        |            |         |
| Educational Status | No Formal Education | 8                                | 40        | 10        | 50        | 1                | 5         | 1               | 5        |           |          | 20        | 13.60      | 0.093   |
|                    | Below 10th standard | 3                                | 15        | 7         | 35        | 6                | 30        | 2               | 10       | 2         | 10       | 20        |            |         |
|                    | Attended College    | 2                                | 10        | 11        | 55        | 5                | 25        | 2               | 10       |           |          | 20        |            |         |
| <b>Total</b>       |                     | <b>13</b>                        | <b>22</b> | <b>28</b> | <b>47</b> | <b>12</b>        | <b>20</b> | <b>5</b>        | <b>8</b> | <b>2</b>  | <b>3</b> | <b>60</b> |            |         |

**Table 3.** When the type appointment taking with dentist was compared with age, sex and educational status using Chi square test, it was not significant and with place it was significant

|     |          | Appointment with dentist  |     |             |    | Total | Chi square | P     |
|-----|----------|---------------------------|-----|-------------|----|-------|------------|-------|
|     |          | Go without an appointment |     | Phone calls |    |       |            |       |
|     |          | N                         | %   | N           | %  |       |            |       |
| Age | Up to 25 | 18                        | 82  | 4           | 18 | 22    | 3.70       | 0.296 |
|     | 26 - 35  | 15                        | 94  | 1           | 6  | 16    |            |       |
|     | 36 - 45  | 6                         | 86  | 1           | 14 | 7     |            |       |
|     | Above 45 | 15                        | 100 |             |    | 15    |            |       |
| Sex | Male     | 29                        | 85  | 5           | 15 | 34    | 1.93       | 0.165 |
|     | Female   | 25                        | 96  | 1           | 4  | 26    |            |       |

|                    |                                 |           |           |          |           |           |      |        |
|--------------------|---------------------------------|-----------|-----------|----------|-----------|-----------|------|--------|
| Place              | City                            | 23        | 82        | 5        | 18        | 28        | 3.60 | 0.058* |
|                    | Rural                           | 31        | 97        | 1        | 3         | 32        |      |        |
| Educational Status | No Formal Education             | 20        | 100       |          |           | 20        | 4.44 | 0.108  |
|                    | Below 10 <sup>th</sup> standard | 18        | 90        | 2        | 10        | 20        |      |        |
|                    | Attended College                | 16        | 80        | 4        | 20        | 20        |      |        |
| <b>Total</b>       |                                 | <b>54</b> | <b>90</b> | <b>6</b> | <b>10</b> | <b>60</b> |      |        |

**Table 4.** When the internet awareness was correlated with age, place and educational status using Chi square test, it was found to be highly significant and with sex, it was not significant

|                    |                     | Have internet knowledge and have ever used internet |           |           |           | Total     | Chi square | p         |    |
|--------------------|---------------------|---|-----------|-----------|-----------|-----------|------------|-----------|----|
|                    |                     | Yes   |           | No        |           |           |            |           |    |
|                    |                     | N   | %         | N         | %         |           |            |           |    |
| Age                | Up to 25            | 19  | 86        | 3         | 14        | 22        | 30.25      | < 0.001** |    |
|                    | 26 - 35             | 12  | 75        | 4         | 25        |           |            |           | 16 |
|                    | 36 - 45             | 3   | 43        | 4         | 57        |           |            |           | 7  |
|                    | Above 45            |   |           | 15        | 100       |           |            |           | 15 |
| Sex                | Male                | 21  | 62        | 13        | 38        | 34        | 0.83       | 0.362     |    |
|                    | Female              | 13  | 50        | 13        | 50        |           |            |           | 26 |
| Place              | City                | 25  | 89        | 3         | 11        | 28        | 22.75      | < 0.001** |    |
|                    | Rural               | 9   | 28        | 23        | 72        |           |            |           | 32 |
| Educational Status | No Formal Education |   |           | 20        | 100       | 20        | 40.86      | < 0.001** |    |
|                    | Below 10th standard | 15  | 75        | 5         | 25        |           |            |           | 20 |
|                    | Attended College    | 19  | 95        | 1         | 5         |           |            |           | 20 |
| <b>Total</b>       |                     | <b>34</b>   | <b>57</b> | <b>26</b> | <b>43</b> | <b>60</b> |            |           |    |

**Table 5.** When the frequency of internet usage for oral health information was compared with age, place and educational status using Chi square test, it was highly significant and with sex it was not significant

|     |          | Frequency of using internet for medical and dental purpose |     |             |    |              |    |             |    | Total | Chi square | P       |    |
|-----|----------|--|-----|-------------|----|--------------|----|-------------|----|-------|------------|---------|----|
|     |          | Never  |     | Once a week |    | Once a month |    | Once a year |    |       |            |         |    |
|     |          | N  | %   | N           | %  | N            | %  | N           | %  |       |            |         |    |
| Age | Up to 25 | 5  | 23  | 6           | 27 | 5            | 23 | 6           | 27 | 22    | 24.84      | 0.003** |    |
|     | 26 - 35  | 6  | 38  | 3           | 19 | 4            | 25 | 3           | 19 |       |            |         | 16 |
|     | 36 - 45  | 5  | 71  | 1           | 14 |              |    | 1           | 14 |       |            |         | 7  |
|     | Above 45 | 15   | 100 |             |    |              |    |             |    |       |            |         | 15 |
| Sex | Male     | 17   | 50  | 6           | 18 | 5            | 15 | 6           | 18 | 34    | 0.14       | 0.987   |    |
|     | Female   | 14   | 54  | 4           | 15 | 4            | 15 | 4           | 15 |       |            |         | 26 |

|                    |                     |           |           |           |           |          |           |           |           |           |       |           |
|--------------------|---------------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-------|-----------|
| Place              | City                | 6         | 21        | 8         | 29        | 7        | 25        | 7         | 25        | 28        | 19.44 | < 0.001** |
|                    | Rural               | 25        | 78        | 2         | 6         | 2        | 6         | 3         | 9         | 32        |       |           |
| Educational Status | No Formal Education | 20        | 100       |           |           |          |           |           |           | 20        | 39.74 | < 0.001** |
|                    | Below 10th standard | 9         | 45        | 2         | 10        | 6        | 30        | 3         | 15        | 20        |       |           |
|                    | Attended College    | 2         | 10        | 8         | 40        | 3        | 15        | 7         | 35        | 20        |       |           |
| <b>Total</b>       |                     | <b>31</b> | <b>52</b> | <b>10</b> | <b>17</b> | <b>9</b> | <b>15</b> | <b>10</b> | <b>17</b> | <b>60</b> |       |           |

**Table 6.** When internet usage during dental pain was compared with place and educational status, it was found to be highly significant and with sex and age it was not significant

|                    |                     | Do when experience dental pain |           |                 |           |                             |           | Total     | Chi square | P       |
|--------------------|---------------------|--------------------------------|-----------|-----------------|-----------|-----------------------------|-----------|-----------|------------|---------|
|                    |                     | Go to medical shop             |           | Visit a dentist |           | Search about in on internet |           |           |            |         |
|                    |                     | N                              | %         | N               | %         | N                           | %         |           |            |         |
| Age                | Up to 25            | 6                              | 27        | 10              | 45        | 6                           | 27        | 22        | 8.39       | 0.211   |
|                    | 26 - 35             | 5                              | 31        | 8               | 50        | 3                           | 19        | 16        |            |         |
|                    | 36 - 45             | 2                              | 29        | 5               | 71        |                             |           | 7         |            |         |
|                    | Above 45            | 8                              | 53        | 7               | 47        |                             |           | 15        |            |         |
| Sex                | Male                | 10                             | 29        | 19              | 56        | 5                           | 15        | 34        | 1.25       | 0.536   |
|                    | Female              | 11                             | 42        | 11              | 42        | 4                           | 15        | 26        |            |         |
| Place              | City                | 4                              | 14        | 17              | 61        | 7                           | 25        | 28        | 11.14      | 0.004** |
|                    | Rural               | 17                             | 53        | 13              | 41        | 2                           | 6         | 32        |            |         |
| Educational Status | No Formal Education | 11                             | 55        | 9               | 45        |                             |           | 20        | 8.98       | 0.052*  |
|                    | Below 10th standard | 6                              | 30        | 9               | 45        | 5                           | 25        | 20        |            |         |
|                    | Attended College    | 4                              | 20        | 12              | 60        | 4                           | 20        | 20        |            |         |
| <b>Total</b>       |                     | <b>21</b>                      | <b>35</b> | <b>30</b>       | <b>50</b> | <b>9</b>                    | <b>15</b> | <b>60</b> |            |         |

**Table 7.** When the sources of information on oral health issues are compared with age, sex, place and educational status using Chi square test, it was not significant

|                    |                                 | Source of information about dental issues |           |                 |           |          |          | Total     | Chi square | p     |
|--------------------|---------------------------------|---|-----------|-----------------|-----------|----------|----------|-----------|------------|-------|
|                    |                                 | Dentist                                   |           | Friends, Family |           | Internet |          |           |            |       |
|                    |                                 | N   | %         | N               | %         | N        | %        |           |            |       |
| Age                | Up to 25                        | 8   | 36        | 13              | 59        | 1        | 5        | 22        | 2.03       | 0.917 |
|                    | 26 - 35                         | 6   | 38        | 10              | 63        |          |          | 16        |            |       |
|                    | 36 - 45                         | 2   | 29        | 5               | 71        |          |          | 7         |            |       |
|                    | Above 45                        | 5   | 33        | 10              | 67        |          |          | 15        |            |       |
| Sex                | Male                            | 12  | 35        | 21              | 62        | 1        | 3        | 34        | 0.80       | 0.671 |
|                    | Female                          | 9   | 35        | 17              | 65        |          |          | 26        |            |       |
| Place              | City                            | 11  | 39        | 16              | 57        | 1        | 4        | 28        | 1.74       | 0.420 |
|                    | Rural                           | 10  | 31        | 22              | 69        |          |          | 32        |            |       |
| Educational Status | No Formal Education             | 8   | 40        | 12              | 60        |          |          | 20        | 3.07       | 0.547 |
|                    | Below 10 <sup>th</sup> standard | 5   | 25        | 14              | 70        | 1        | 5        | 20        |            |       |
|                    | Attended College                | 8   | 40        | 12              | 60        |          |          | 20        |            |       |
| <b>Total</b>       |                                 | <b>21</b>                                 | <b>35</b> | <b>38</b>       | <b>63</b> | <b>1</b> | <b>2</b> | <b>60</b> |            |       |

**Table 8.** When the benefit of information from internet regarding oral health issues was compared with age, sex, place and educational status using Chi square test, with educational status, it was found to be highly significant and with age, sex and place it was not significant

|                    |                                 | Is the information gained from the internet regarding dental problems , beneficial to you in any way |           |           |           | Total     | Chi square | p      |
|--------------------|---------------------------------|--|-----------|-----------|-----------|-----------|------------|--------|
|                    |                                 | Yes  |           | No        |           |           |            |        |
|                    |                                 | N  | %         | N         | %         |           |            |        |
| Age                | Up to 25                        | 11   | 65        | 6         | 35        | 17        | 0.31       | 0.858  |
|                    | 26 - 35                         | 7  | 70        | 3         | 30        | 10        |            |        |
|                    | 36 - 45                         | 1  | 50        | 1         | 50        | 2         |            |        |
| Sex                | Male                            | 11   | 65        | 6         | 35        | 17        | 0.01       | 0.913  |
|                    | Female                          | 8  | 67        | 4         | 33        | 12        |            |        |
| Place              | City                            | 14   | 64        | 8         | 36        | 22        | 0.14       | 0.706  |
|                    | Rural                           | 5  | 71        | 2         | 29        | 7         |            |        |
| Educational Status | Below 10 <sup>th</sup> standard | 10   | 91        | 1         | 9         | 11        | 5.06       | 0.025* |
|                    | Attended College                | 9  | 50        | 9         | 50        | 18        |            |        |
| <b>Total</b>       |                                 | <b>19</b>  | <b>66</b> | <b>10</b> | <b>34</b> | <b>29</b> |            |        |

**Table 9.** When benefit gained through internet on oral health issues were compared with age, sex and place, it was not significant and with educational status it was significant

|                    |                     | Is the information gained from the internet regarding dental problems, beneficial to you in any way |           |           |           | Total     | Chi square | p      |
|--------------------|---------------------|---|-----------|-----------|-----------|-----------|------------|--------|
|                    |                     | Yes   |           | No        |           |           |            |        |
|                    |                     | N   | %         | N         | %         |           |            |        |
| Age                | Up to 25            | 11  | 65        | 6         | 35        | 17        | 0.31       | 0.858  |
|                    | 26 - 35             | 7   | 70        | 3         | 30        | 10        |            |        |
|                    | 36 - 45             | 1   | 50        | 1         | 50        | 2         |            |        |
| Sex                | Male                | 11  | 65        | 6         | 35        | 17        | 0.01       | 0.913  |
|                    | Female              | 8   | 67        | 4         | 33        | 12        |            |        |
| Place              | City                | 14  | 64        | 8         | 36        | 22        | 0.14       | 0.706  |
|                    | Rural               | 5   | 71        | 2         | 29        | 7         |            |        |
| Educational Status | Below 10th standard | 10  | 91        | 1         | 9         | 11        | 5.06       | 0.025* |
|                    | Attended College    | 9   | 50        | 9         | 50        | 18        |            |        |
| <b>Total</b>       |                     | <b>19</b>   | <b>66</b> | <b>10</b> | <b>34</b> | <b>29</b> |            |        |

## 4. Results

When the internet awareness was correlated with age, place and educational status using Chi square test, it was found to be highly significant and with sex, it was not significant. When the frequency of internet usage for oral health information was compared with age, place and educational status using Chi square test, it was highly significant and with sex it was not significant. When internet usage during dental pain was compared with place and educational status, it was found to be highly significant and with sex and age it was not significant. When the sources of information on oral health issues are compared with age, sex, place and educational status using Chi square test, it was not significant. When the benefit of information from internet regarding oral health issues was compared with age, sex, place and educational status using Chi square test, with educational status, it was found to be highly significant and with age, sex and with place it was not significant. (Table 1 to Table 9)

## 5. Discussion

Chestnutt et al. have described the impact of the Internet on dentistry as positive but have also concluded that it has not fully realised its potential. The present study showed

that awareness, frequency and usage of internet was more in patients coming from city and with patients who have studied in college<sup>1</sup>. Naganandini et al reported that low socioeconomic status and a low educational level act as barriers to using the internet. Our study showed positive correlation of internet usage with educational status<sup>2</sup>.

Aydin et al., reported from Turkey that those in the 25- to 34-year age group who were married, employed, and who have a university degree and were much more likely to seek health information on the Internet than their counterparts<sup>3</sup>. Our study also showed that age, place and educational status were correlated with internet usage.

Harris et al., reported that the patients attending student dental hygiene clinics make little use of the Internet for oral health information<sup>1</sup>. However, reported interest in future access is such that dental professionals should develop and harness the potential of the Internet as an educational resource.

## 6. Conclusion

We may conclude that creating awareness amongst people of different educational backgrounds through appropriate means (following an individualized approach based on educational qualification) would increase internet use for acquiring information on oral health. Confirmation

of the results can be obtained by study of more number of patients in all three categories.

## 7. References

---

1. Harris CE, Chestnut IE. The use of the Internet to access oral health-related information by patients attending dental hygiene clinics. *Int. J. Dent. Hyg.* 2005 May; 3(2):70–3. <https://doi.org/10.1111/j.1601-5037.2005.00129.x> PMID:16451385
2. Naganandini S, Rao R, Kulkarni SB. Survey on the use of the Internet as a source of oral health information among dental patients in Bangalore City, India. *Oral Health Prev Dent.* 2014; 12(2):141–7. PMID:24624382
3. Aydin U, Ozturk M, Kirbiyik. Prevalence of internet usage and access to health information among dental school out-patients, *Telemed J. E. Health.* 2004 Winter; 10(4):444–8. <https://doi.org/10.1089/tmj.2004.10.444> PMID:15689648