

# Health Apps: Its Impact On Health Care Students in Telangana – A Cross Sectional KAP Study

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**Abstract: Introduction:** Smart phones are powerful devices that combine the conventional functions of a mobile phone with advanced computing capabilities enabling users to access software applications commonly termed as “apps”. Health care applications (apps) that are downloadable on to smart phones are increasingly becoming popular among clinicians. **Aim:** To assess knowledge, attitude and practice in health apps among health care dental students.

**Objective:** To assess the knowledge, attitude and practice in health apps based on gender.

**Materials and methods:** A cross sectional KAP study was conducted on clinical dental students of Mamata dental college, Khammam, Telangana. A questionnaire was used and it consists of questions regarding demographic data, knowledge, attitude and practice of health care apps. Descriptive statistics were computed to demonstrate the frequency of responses and the comparisons were made using chi-square test. A p-value less than or equal to 0.001 was considered to be significant. The data obtained were entered into Microsoft excel sheet and was then analysed.

**Results:** A total of 161 participants voluntarily participated in the study. The female participants were 83.9% and male participants were 16.1%.

**Conclusion:** Majority of female participants showed high prevalence in knowledge on the Health care apps than males. While majority of female participants showed high prevalence of attitude and males showed more practice towards health care apps than females.

**Keywords:** Health care apps, Fitness apps, Health care, Students.

## 1. Introduction

Smart phones have become ubiquitous among general public. Advanced mobile communications and portable computations are now combined in a handheld device called as “Smart Phone”. These phones are capable of running third party software “Applications” commonly termed as “apps” [1]. Smartphone users are able to download applications or “apps” to their devices. Apps are self-contained programs for smartphones designed to fulfill a particular purpose. Of the more than one million apps available, there are 23,490 and 17,756 “health and fitness” apps available on Apple iTunes (iOS) (Apple Inc, Cupertino, Calif) and Google Play (Android OS) (Google, Inc, Mountain View, Calif) respectively. This

number continues to grow, with the use of health and fitness apps on Apple’s iPhone and iPad having increased by 62% in 2014 compared with 33% for apps in general. Given that 58% of US adults own smartphones and 47% of those with a household income less than \$30,000 have a smartphone, health and fitness apps may have great potential to reach those populations with limited access to healthcare information and interventions. Most of the popular mobile health and fitness apps focus on fitness and self-monitoring. Fitness apps may represent another tool to assist healthcare providers in measuring health and fitness parameters, setting goals for patients, and helping patients achieve their goals [2]. Globally, it is estimated that in 2019, there were 6.8 billion users worldwide and it is expected that in 2023 the number of users will increase to 7.33 billion. In particular, 90% of the time dedicated to the Smartphone is for the use of mobile applications (Apps) [3]. In fact, authors such as Banskota, Healy, and Goldberg proposed different Apps as tools to maintain and improve physical and mental fitness in the Covid-19 pandemic. These Apps are linked to the fitness sector, revolutionizing the ways of doing physical activity and the relationships between fitness providers and consumers [3]. The statistic displays the average number of apps used on daily basis across India in July and August 2017 based on gender, men used 34 apps per day and Women’s used 28 apps per day [4]. To the best of our knowledge, little is known in regard to the usage of health care apps among Dental students. Adding to these, India stood one among the top countries in smart phone subscription, but still there are no studies conducted in Indian context till date on usage of smart phone among dental students. Thus a study was planned with an aim to assess knowledge, attitude, and practice of health care apps among clinical dental students of a tertiary care dental college and hospital, Khammam, Telangana, India.

## 2. Materials and Methods

### A. Study Design

A cross sectional study was conducted to assess the knowledge, attitude and practice of clinical dental students

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about usage of health care app in smart phone. A proforma was designed for this study which consisted of 3 parts.

- I part: General information (Annexure: I)
- II part: Usage of mobile phone (Annexure: II)
- III part: Knowledge, attitude and practice regarding health care apps (Annexure: III)

**Inclusion criteria:**

- Subjects who are willing to participate in the survey.
- Subjects who are present on the day of survey.

**Exclusion criteria:**

- Subjects who are absent on the day of survey.
- Subjects who are not willing to participate in the survey.

**Ethical clearance:**

- Ethical clearance obtained from the institutional ethical committee of Mamata dental college and hospital, Khammam, before commencement of the study.

**B. Method of obtaining data**

A cross sectional study was conducted among clinical students of Mamata dental college, 161 participants were voluntarily participated. Questionnaire was given to the participants who are present on the day of survey conducted. The participants were instructed by the investigator, after answering to the questions they must be handed over the questionnaire to the investigator. The data was collected from November 3rd 2019 to November 6th 2019 during the working hours of the college between 9:00am to 4:00pm. The data obtained were entered into Microsoft excel sheet and was then analysed.

**3. Results**

A cross sectional study was conducted to assess the knowledge, attitude and practice of clinical dental students about usage of health care apps in smart phone. (Table 1) In the present study, a total 161 members were voluntarily participated. Based on the year of study participants are divided into IV BDS (73) 45%, INTERNS (59) 37% and POST GRADUATES (29) 18%. Out of 161 participants, males were 16.1% (26) and 83.9% (135) females were participated.

Table 1  
Distribution of participants

	No. of participants	% of participants
<b>1. Based on year of study:</b>		
IV BDS	73	45%
INTERNS	59	37%
POST GRADUATES	29	18%
TOTAL	161	100%
<b>2. Based on Gender:</b>		
Male	26	16.1%
Female	135	83.9%
Total	161	100%

(Table 2) In the present study, 66% (89) of female participants said “Healthify Me: weight loss plan” app was developed to know about ‘all the above’, 20% (27) said they ‘don’t know’, 10% (13) said developed to know about ‘diet

plan’ whereas 2%(3) said about ‘weight loss and BMI’. Among male participants (9) 34% said “Healthify Me: weight loss plan” app was developed to know about ‘all the above’, 23% (6) said they ‘don’t know’, 12% (3) said to know about ‘diet plan’, 12% (3) said to know about ‘BMI’ whereas 5 (19%) said to know about ‘weight loss’. The findings drawn from the study showed statistically significant with p value 0.001\* and chi square value 21.462.

Table 2

Assessing Knowledge regarding health care apps usage based on gender

<b>3. “Healthify Me: weight loss plan” app developed to know about?</b>		
	MALES (100%)	FEMALES (100%)
BMI	3(12%)	3(2%)
Weight loss	5(19%)	3(2%)
Diet plan	3(12%)	13(10%)
All the above	9(34%)	89(66%)
Don’t know	6(23%)	27(20%)
Chi-square value: 21.462, p value-(0.001*)		
<b>4. “Pulse rate, Heart beat monitor” app developed to know about?</b>		
Heart rate	6(23%)	4(3%)
Pulse rate	0	3(2%)
Blood pressure	2(8%)	0
All the above	15(58%)	102(76%)
Don’t know	1(4%)	24(18%)
Heart rate and pulse rate	2(8%)	1(1%)
Blood pressure and heart rate	0	1(1%)

Chi-square value: 34.692, p value-(0.001\*)

Among females 76% (102) said “Pulse rate, Heart beat monitor” app was developed to know about ‘all the above’, (24)18% said they ‘don’t know’, 3% (4) said to know about ‘heart rate’, 2% (30) said to know about ‘pulse rate’, 1% (1) said to know about ‘Heart rate and pulse rate’ whereas 1% (1) said to know about ‘Blood pressure and heart rate’. Among male participants (15) 58% said “Pulse rate, Heart beat monitor” app was developed to know about ‘all the above’, (6) 23% said to know about ‘heart rate’, (2) 8% said to know about ‘blood pressure’, (2) 8% said to know about ‘heart rate and pulse rate’ whereas (1) 4% said they ‘don’t know’. The findings drawn from the study showed statistically significant with p value 0.001\* and chi square value 34.692.

Table 3

Assessing Attitude regarding health care apps usage based on gender

<b>5. Regularly following health apps can improve our health?</b>		
	MALES	FEMALES
Yes	14(54%)	45(33%)
No	5(19%)	15(11%)
Maybe	7(27%)	75(56%)
Chi-square value: 7.170, p value-(0.028)		

(Table 3) In the present study, female participants (75) 56% said ‘may be’ regularly following health apps can improve our health, (45) 33% said ‘yes’ regularly following health apps can improve our health whereas (15) 11% said ‘no’ regularly following health apps can’t improve our health. Male participants (14) 54% said ‘yes’ regularly following health apps can improve our health, (7) 27% said ‘may be’ regularly following health apps can improve our health whereas (5) 19% said ‘no’ regularly following health apps can’t improve our health. The findings drawn from the study showed not statistically significant with p value 0.028 and chi square value 7.170.

Table 4

Assessing Practice regarding health care apps usage based on gender

6. How much time you spend on mobile per day based on gender?		
TIME	MALES	FEMALES
1-3hrs	5(19%)	34(25%)
3-6hrs	4(15%)	38(28%)
6-9hrs	3(12%)	15(11%)
Whenever needed	14(54%)	48(36%)
Chi-square value- 3.578, p value-(0.311)		
7. Which apps you use on your mobile frequently?		
Whatsapp	8(31%)	39(29%)
Instagram	4(15%)	16(12%)
Facebook	0	1(1%)
Health and fitness	0	3(2.2%)
All the above	0	15(11%)
Facebook and Instagram	2(8%)	2(1%)
Whatsapp and Facebook	0	1(1%)
Whatsapp, Instagram, Health and fitness	12(46%)	55(41%)
Instagram, health and fitness app	0	3(2%)

\*Chi-square value- 8.213, p value-(0.413)

(Table 4) In the present study male participants (14) 54% spend on mobile “whenever needed”, (5) 19% spend on mobile for ‘1-3hrs’, (4) 15% spend on mobile for ‘3-6hrs’, (3) 12% spend on mobile for ‘6-9hrs’. Among female participants, (48) 36% spend on mobile ‘whenever needed’, (38) 28% spend on mobile for ‘3-6hrs’, (34) 25% spend on mobile for ‘1-3hrs’, (15) 11% spend on mobile for ‘6-9hrs’. The findings drawn from the study showed not statistically significant with p value 0.311 and chi square value 3.578. Among male participants (12) 46% use ‘Whatsapp, instagram, Health and fitness’ frequently, (8) 31% use ‘whatsapp’ frequently, (4) 15% use ‘Instagram’, (2) 8% use ‘Facebook and instagram’. Among female participants (55) 41% use; Whatsapp, instagram, Health and fitness’ frequently, (39) 29% use ‘whatsapp’ frequently, (16) 12% use ‘instagram’, 15 (11%) said they use ‘all the above apps’, (3) 2% use ‘Instagram, health and fitness app’, (3) 2.2% use ‘Health and fitness apps’, (1)1% use ‘facebook’, (2)1% use ‘facebook and instagram’, (1)1% use ‘whatsapp and facebook’. The findings drawn from the study showed not statistically significant with p value 0.413 and chi square value 8.213.

#### 4. Discussion

A cross sectional study was conducted to assess the knowledge, attitude and practice of clinical dental students about usage of health care apps in smart phone. In the present study out of 161 study participants, 16.1% (26) of male participants and 83.9% (135) of female participants were participated.

In the present study, majority of female 76% participants said Pulse rate, Heart beat monitor” app developed to know about heart rate, pulse rate and blood pressure. This result shows that female participants are aware of health care apps.

In the present study, majority of female 66% participants said “Healthify Me: weight loss plan” app was developed to know about weight loss, diet plan and body mass index. This could be due to participants are more conscious about their fitness to lead a healthy life style. Huang et al (2020) [5] conducted a study on Chinese app users which showed 57% of females use fitness app.

In the present study, majority of female (56%) said may be regularly following health care apps can improve our health. This results shows that the female participants are aware and also keen to improve their health using health care apps.

In the present study, majority of the males (46%) frequently use Whatsapp, Instagram, Health and fitness Apps. This could be due to nowadays males are conscious about their physic and participate actively in social medias to expose their ideas. On contrary Mike Thelwall et al (2017) [6] conducted a study on UK population showed 52% of females use Whatsapp and Instagram than males.

*Limitations:* The results from this study cannot be generalized, as the sample size of the present study was small and confined to one particular area. Multi centric studies of this kind with large sample size are needed for the results to be generalized.

#### 5. Conclusion

Majority of female participants have knowledge and positive attitude regarding health care apps whereas, males were found to be more practice towards health apps than females.

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