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KAP SURVEY ON THE PATIENTS PREFERENCE FOR DIGITAL WELLBEING APPS FOR THE MANAGEMENT OF ORAL HEALTH

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All authors gave final approval and agreed to be accountable for all aspects of the work.

Conflict of interest:

The authors declare no conflict of interest.

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ABSTRACT:
Objective: A mobile application, commonly called a mobile app or simply an app, is a computer program or software application which is well structured and organised that is reachable on all mobile devices such as a phone, tablet, or watch. Oral disease hand out unnecessary pain and suffering and it is the fourth most costly disease to treat in most streamlined countries. Digital apps bridge the gap between patients and the dentist and helps the patients in maintaining a good oral hygiene
Materials and methods: A self questionnaire based survey was conducted and circulated by online platform 'google forms' and results were analyzed using the statistical software SPSS Software version 23 and results were represented using pie charts.
Results: The awareness level of the participants was good, and the willingness of using the apps was high. p value (<0.05), which is statistically significant.
Conclusion: The knowledge of oral health is quite good among the patients preferring it. Oral apps are designed to satisfy any type of treatment, knowledge and awareness about oral hygiene and oral related problems.

Key words: Apps, Awareness, Digital wellbeing, Hygiene, Knowledge, Oral Care.

INTRODUCTION:
A mobile application, commonly called a mobile app or simply an app, is a computer program or software application which is organised that is accessible on mobile devices such as a phone, tablet, or watch. Mobile health apps can assist people cope with their own health and wellness, advance healthy living and gain retrieval of useful information when and where they need it [1]. Mobile apps allow doctors to monitor patients with chronic heart failure [2] and to discover early signs of arrhythmia or ischemia that can indicate an forthcoming heart attack [3].

Some patients themselves use apps that sense and measure devices to supervise their physical activities and to monitor physiological markers relevant to their health status[4],[5]. Oral disease hand out unnecessary pain and suffering and it is the fourth most costly disease to treat in most streamlined countries [6]. Oral health is the elemental to overall health. Carious disease has a multifactorial aetiology, mainly related to the eating habits and lifestyle [7].

Poor oral health can affect someone's capability to eat, speak, smile and converse normally, due to pain or discomfiture [8]. Effective plaque removal and oral hygiene compliance have been important concerns for orthodontists which is easily known through oral apps [9]. Mobile apps have engaged themselves in teaching routine toothbrushing which is the principal method by which individuals get rid of plaque and control plaque-related diseases, such as periodontitis and caries [10]. Oral disease affects a lot of people worldwide and mobile phone use is also

rising, so the market for well-designed and effective oral health apps is fundamental [11]. When tooth decay affects children, it is often necessary to take into account and motivate these patients to maintain proper hygiene constantly in which dental apps may play an important role [12], 13. The benefits of oral apps include that they can be provided to an individual anywhere at any time and provide a chance for interaction and customisation for particular populations or target groups [14]. Our research and knowledge have resulted in high-quality publications from our team [15–29]

Hence the aim of this research is to assess knowledge, attitude, practice on patients preference for digital well-being apps for management of oral health.

MATERIALS AND METHODS:

The study was conducted as a survey as 100 participants were recorded. The responses of the survey consisted of 15 questions and it was circulated using online platform 'google forms' and results were analysed using the statistical software SPSS Software version 23 (www.ibm.com). Chart analysis was carried out with the responses recorded in the software and results were represented using pie charts. The main aim of the study is to acknowledge patients' preference towards digital wellbeing apps for management for oral health. P value (<0.05), it is statistically significant.

RESULTS:

The results have shown awareness and knowledge level of patients and the general population. About the awareness level of apps used for management of oral hygiene, 63.64% responded no and 36.36% yes. About the perception of usefulness about dental apps, 36.36% responded no, 35.35% responded yes and 28.28% responded maybe. About the perception that oral apps enhance oral health knowledge. 87.88% responded yes and 12.12% responded no. About the awareness that apps contain information such as ECC, health diet, sugar intake and training video, 74.75% responded yes and 25.25% responded no.

About the perception that apps would help mothers in case of pregnancy and aftermath. 65.66% responded yes and 34.34% responded no. About the perception based on the effectiveness of these apps in improving oral health knowledge and plaque control. 24.24% responded no, 32.32% responded maybe and 43.43% responded yes. About the perception dental apps may provide improvement in barriers to oral health, 75.76% responded yes and 25.24% responded no.

About the restriction to these apps, 43.43% responded to storage issues, 32.32% responded not aware and 24.24% responded not interested. About the awareness of apps helping to monitor sucrose level, 75.76% responded yes and 24.34% responded no. About the usefulness of physical counselling about oral hygiene replaced by apps, 96.97% responded yes and 3.03% responded no. About the awareness about apps having exercises such as brushing, flossing

86.87% responded yes and 13.13% responded no. About the perception about the apps becoming successful in the world of mobile technology and about 87.88% responded yes and 12.12% responded no. About the awareness that dental apps can deal with problems where and when you are, 83.84% responded yes and 16.16% responded no.

About the sense that dental apps are time consuming and cost effective. 85.86% responded yes and 14.14% responded no. About the perception about reduction in engagement with lengthy consultation, the majority of 100.00% participants responded yes.

Graph 1 represents the correlation between gender and opinion on the awareness of apps used for oral management. Out of 100 participants, 25 responded no and 8 responded yes among females and 37 responded no and 28 responded yes among males , gender does have an influence on the general opinion and perception. P value= 0.036(<0.05) and it was statistically significant. Graph 2 represents the correlation between gender and opinion on the perception that dental apps are time consuming and cost effective. Out of 100 participants, 1 responded no and 32 responded yes among females and 13 responded no and 52 responded yes among females, Gender does have an influence on the general opinion and perception. P value= 0.014(<0.05) and it was statistically significant.

DISCUSSION:

Oral health worldwide needs improvement : untreated dental caries is the most common health condition affecting people globally. In the article [1] it has mentioned that oral apps are cost effective. The results of the article Tiffany B et al, the awareness level was poor, and The quality of the apps is generally poor and added that there are important opportunities existing to develop oral health promotion apps whose content should be theoretically grounded and evidence-based. [11], contrary to this the article of Parker K et al showed that the results were favorable and the study population had a good amount of knowledge about oral apps [30]. Previous articles concluded that Apps in children allowed achieving encouraging results with improvement of oral hygiene and health and also discussed ECC, training videos.Children are more at risk of dental decay onset because of lack of cooperation and difficulty in daily oral hygiene performing [12],[31].

The study of AlKlayb SA et al the mobile phone application significantly improves the knowledge of mothers toward their child's oral health. Previous articles concluded that the benefits of oral apps include that they can be delivered to an individual anywhere at any time, they also concluded that apps support lifestyle and medical care for the Particularly gestation mother, to reduce just stational weight gain to increase intake of vegetables to look after oral healthcare, in general the evidence on effectiveness of the app is limited and needs further investigation [14],

According to the oral health educational content it had other issues as well, prime example that the app advised users that eating fruits and vegetables can stain one’s teeth while there is some

evidence that eating certain fruits vegetables dairy and so products may contribute to development of dark spots on the teeth called black stain [32]. The article of Erbe C et al article has concluded that the interactive power toothbrush with bluetooth technology has helped technology-savvy adolescents, in producing increase in the brushing efficacy [33], [34]

CONCLUSION:

The knowledge of oral health is quite good among the patients preferring it. Oral apps can satisfy any type of treatment, knowledge and awareness about oral hygiene and oral related problems. We can access it whenever and wherever, making it easy and comfortable to learn through mobile phones.

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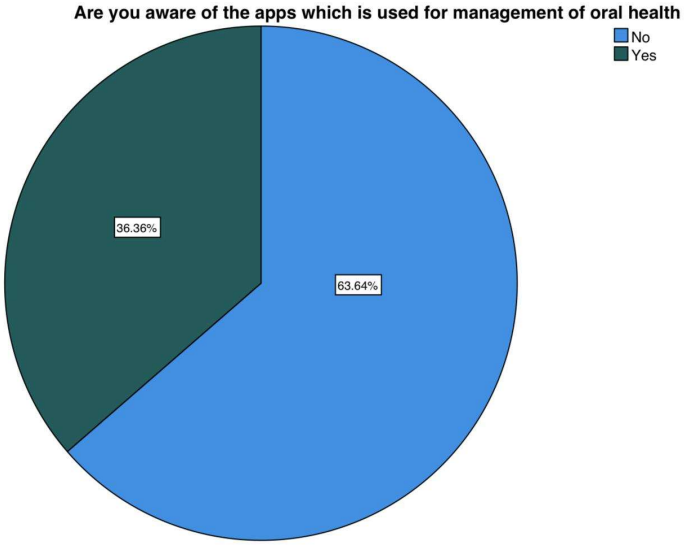

Fig.1: Pie Chart representing the percentage distribution of participants based on their opinions towards the awareness about apps used for management of oral hygiene. Blue colour represents no and green colour represents yes. 63.64% responded no and 36.36% yes.

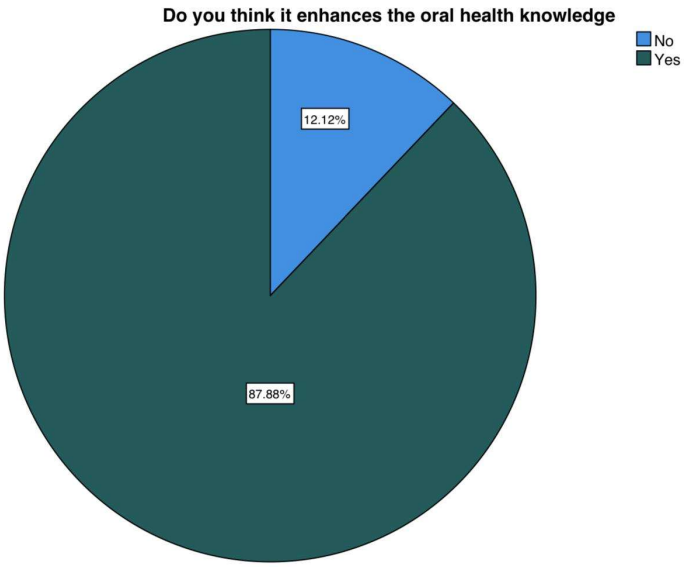

Fig 2: Pie Chart representing the percentage distribution of participants based on their opinions of perception that oral apps enhance the oral health knowledge.Blue colour represents no and green colour represents yes. 87.88% responded yes and 12.12% responded no.

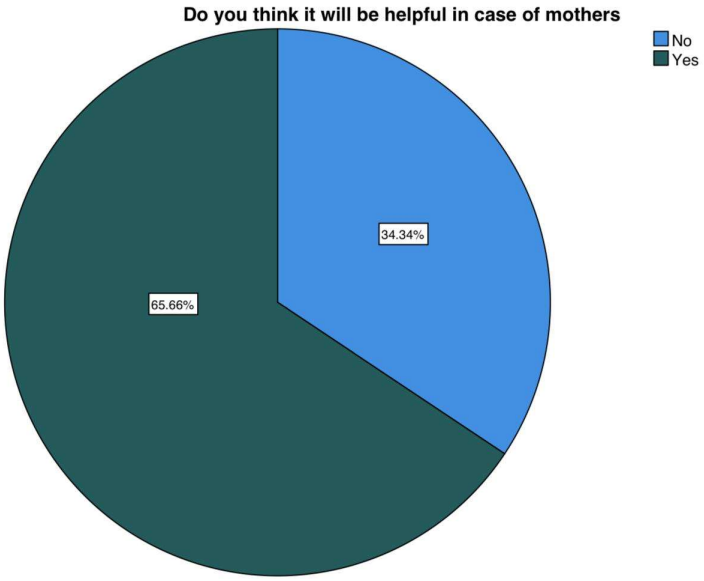

Fig 3: Pie Chart representing the percentage distribution of participants based on their opinions of perception that apps would help mothers in case of pregnancy and aftermath. Blue colour represents no and green colour represents yes. 65.66% responded yes and 34.34% responded no.

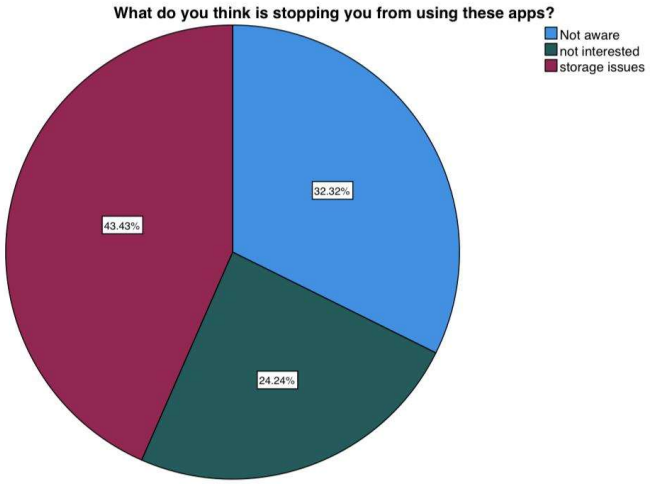

Fig 4:Pie Chart representing the percentage distribution of participants based on their opinions of the restriction to these apps, 43.43% responded to storage issues, 32.32% responded not aware and 24.24% responded not interested. Blue colour represents not aware , green colour represents not interested and red represents storage issues.

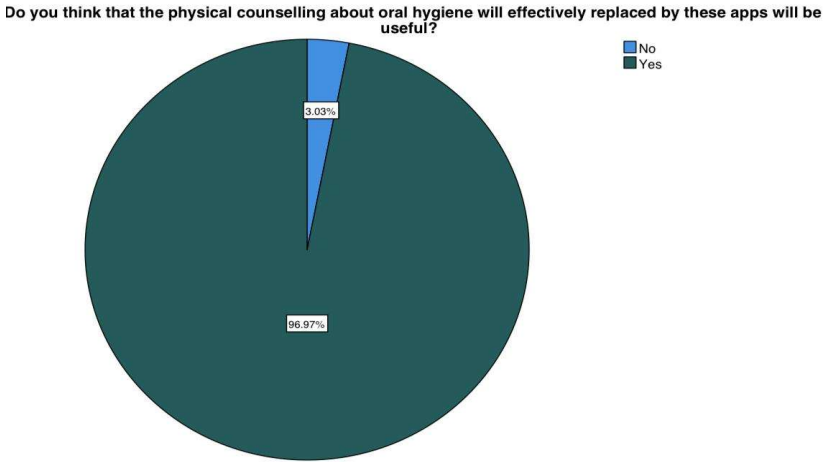

Fig 5: Pie Chart representing the percentage distribution of participants based on their opinions of the usefulness of physical counselling about oral hygiene replaced by apps, 96.97% responded yes and 3.03% responded no. Blue colour represents no and green colour represents yes.

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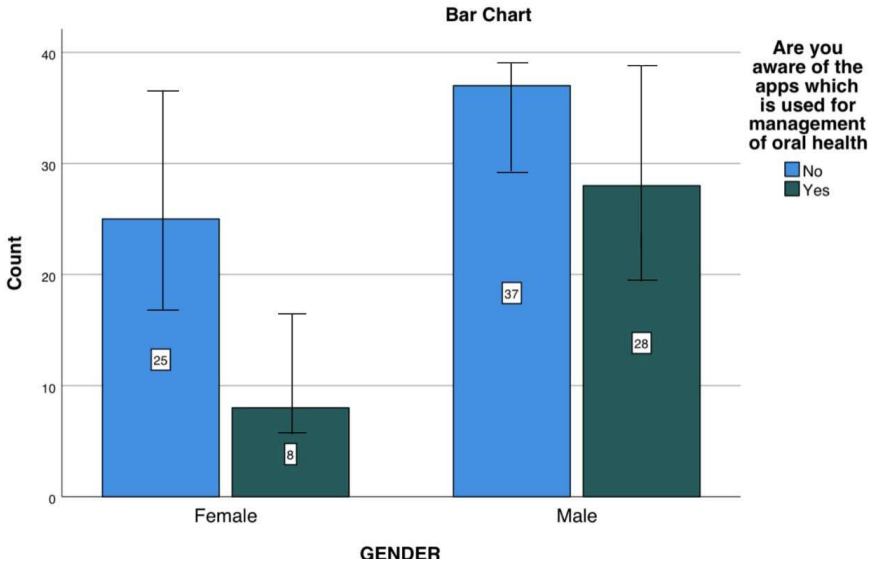

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Graph 1: Bar chart showing the association between gender and opinion on the awareness of apps used for oral management

Bar graph representing the individual opinion on the awareness of apps used for oral management .X axis represents gender ,Y axis represents individuals who are aware (green) and who aren't aware (blue). Out of 100 participants, 25 responded no and 8 responded yes among females and 37 responded no and 28 responded yes among males , gender does have an influence on the general opinion and perception.

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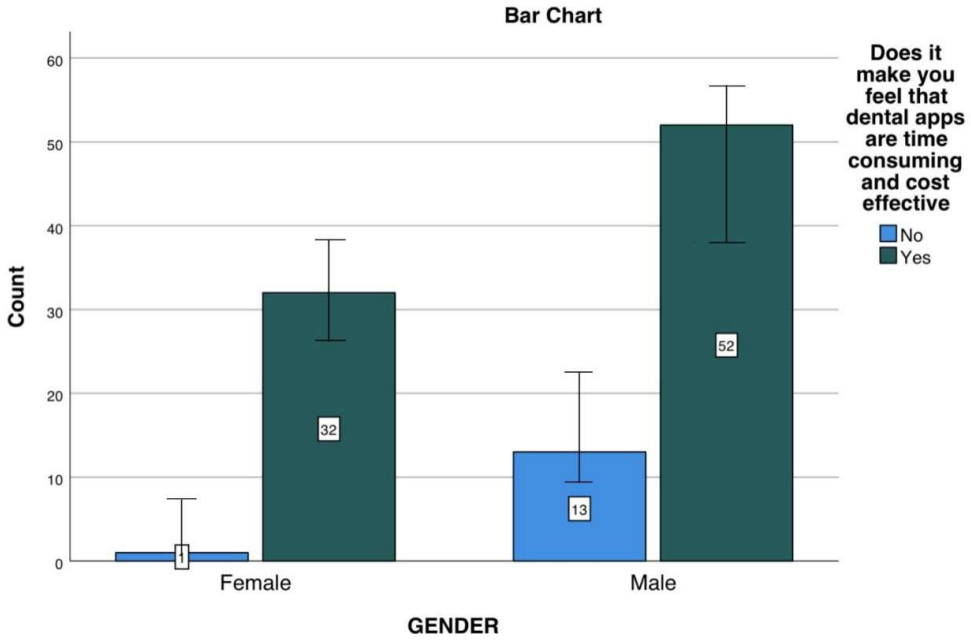

Graph 2: Bar chart showing the association between gender and opinion on the perception that dental apps are time consuming and cost effective

Bar graph representing the individual opinion on the awareness of apps used for oral management .X axis represents gender ,Y axis represents individuals who are perceived (green) and who don't perceive (blue). Out of 100 participants, 1 responded no and 32 responded yes among females and 13 responded no and 52 responded yes among females, Gender does have an influence on the general opinion and perception.