



# Mobile dental application and Chotta Bheem and Chutki scale in the management of child behavior: A pilot study

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## Abstract

**Background:** Dental appointment is a very stressful condition which raises children's anxiety. It is generally seen that children are stuck up to the mobile phone playing interactive games or even browsing internet. We have an app for possibly everything.

**Aim:** The aim of this study was to evaluate the effectiveness of dental apps in the management of child's anxiety and behavior for various treatment procedures.

**Materials and Methods:** Forty children were made to use mobile dental app called "My Little Dentist" on android device. The anxiety level was noted before and after using the app using the "Chotta Bheem-Chutki scale."

**Results:** After the use of mobile app, patients total complete blood count anxiety level was reduced from 60% to 21.6% proving that mobile dental app before the treatment reduce the fear and anxiety in children toward the dental treatment and dentist.

**Conclusion:** The mobile dental app was found to be very useful in the dental setup to reduce the fear and anxiety of the pediatric patients.

## Introduction

The first dental visit is crucial in the formation of the child's attitude toward dentistry and future treatment success.<sup>[1]</sup> Dental appointment is a stressful situation, which raises children's anxiety level and avoidance behavior. Children's dental anxiety is an intense but situational and transient anxiety. If it is not managed, it will possibly continue to adulthood.<sup>[2]</sup> Tell-show-do technique is based on the principle of learning theory and is performed by the dentists themselves in the operatory.<sup>[3]</sup> Modeling applies to empirical training and, in much the same scenario, children will replicate the actions displayed by the model. Modeling can be performed in two forms: Live or filmed one. Studies on modeling have demonstrated its therapeutic effect in the management of anxiety<sup>[4,5]</sup> and educational effect in improving coping skills of children in stressful situations.<sup>[6]</sup> Filmed modeling does not take time by the dentist and dental team although it has not achieved its proper situation. For pre-appointment training of the intended conduct of the child patient, live models such as classmates, siblings, or guardians have been used. The efficacy of simulation through an animation in reducing child dental anxiety has been assessed by several researchers. A standard mobile device has gone from being no

more than a simple two-way pager to being a mobile phone, global positioning system navigation device, an embedded web browser and instant messaging client, and a handheld game console. It is generally seen that children from all the age groups, be it a toddler to a teenager, stuck up to the mobile phone playing interactive games or even browsing internet. Today, we have an app for possibly everything. This app can be used to in the treatment of pediatric patient to make them accustom to the treatments and reduce their fear and anxiety.

## Aim

The purpose of this research was to determine the effectiveness of dental applications in the management of childhood anxiety and activities for various treatment strategies.

## Materials and Methods

In the age group of 6–12 years who visited the dental clinic for the 1<sup>st</sup> time and met inclusion criteria, the sample size obtained was 40 randomly drawn from the outpatient department of pedodontics and preventive dentistry. All children participating in the study were provided the same form of care

to rule out prejudice. The kids who had reported pain were not considered for the study. In this research, on the android and Internetwork Operating System network of smartphones, we used a mobile dental app called “Little Lovely Dentist” available on the Google Play Store. The app gave patients an idea in an engaging environment as to what the nature of their treatment will be. The patients were basically made dentists and were made to do patients in the app that boosted their confidence toward the treatment and also showed the child how a traumatically and painlessly a dental operation could be done.

Before and after using the app, the anxiety levels were recorded using the Chotta Bheem-Chutki scale.

On the same day, dental procedures were then clinically conducted by a single operator after ensuring that the patient was fully satisfied and assured about the dental procedures to be performed.

#### Inclusion criteria

The following criteria were included in the study:

- Kids 6–12 years old
- Kids who visited pediatric dentistry department for the 1<sup>st</sup> time
- Children whose parents/guardians consented to take part in the study for various treatment procedures.

#### Exclusion criteria

- Children appeared to have deficient physical growth
- Children appeared to have deficient mental/psychological growth
- Children appeared to have behavior problems (excessive attachment to parents, etc.)
- Children with acute pain and/or immediate treatment needs.

#### Results

A sample size of 40 was taken for this study. List of procedures taken for this study was extraction, scaling, and restoration.

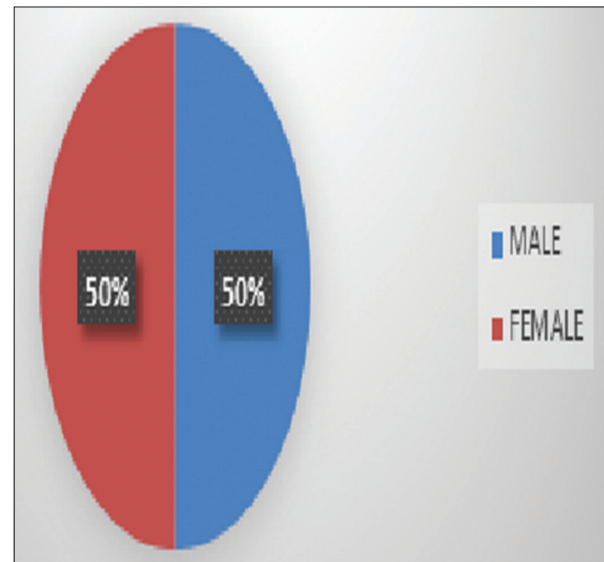
Male-female ratio taken for the study is 50:50, as shown in Graph 1.

It was seen that after the use of mobile app, male patients total chotta bheem –chutki anxiety level was reduced from 53.3% to 20%, as shown in Graph 2.

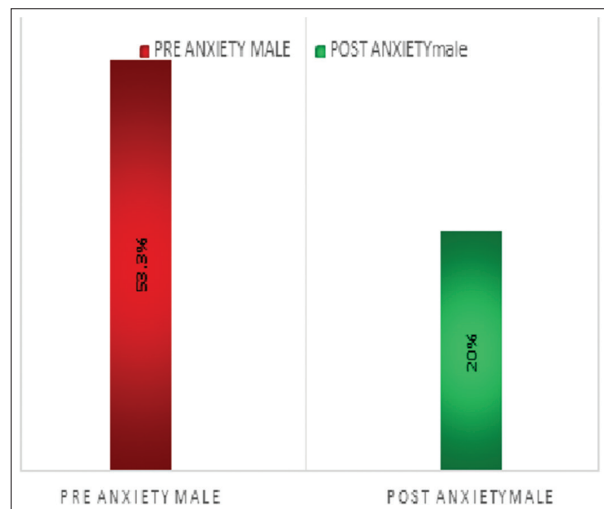
It was seen that after the use of mobile app, female patients total CBC anxiety level was reduced from 66.6 to 23.3%, as shown in Graph 3.

It was seen that after the use of mobile app, patients total CBC anxiety level was reduced from 60% to 21.6%, as shown in Graph 4.

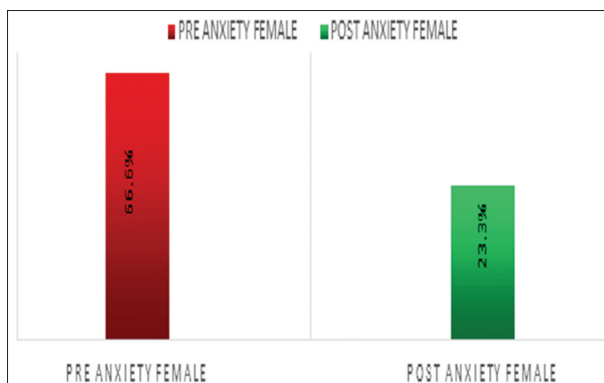
Hence, it proved that mobile dental app before the treatment reduces the fear and anxiety in children toward the dental treatment and dentist.



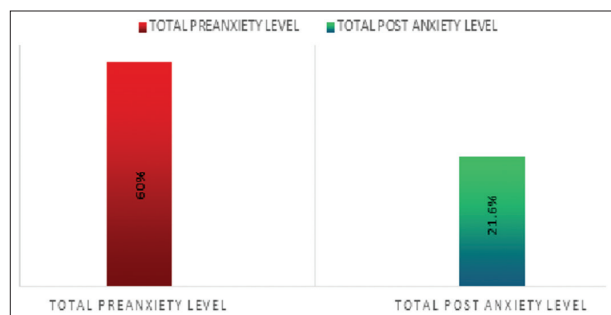
Graph 1: Male-female ratio



Graph 2: Pre and post chotta bheem chutki anxiety level for males



Graph 3: Pre and post chotta bheem chutki anxiety level for females



**Graph 4:** Total pre and post chotta bheem chutki anxiety level

## Discussion

Pre-anxiety is conveyed in children under 6 years through fear of abandonment from the mother and terror of the uncertain. One type of pre-anxiety reduction strategies is to have children with pre-procedure details in a way that is ideal for their stages of development.

Chotta Bheem-Chutki scale measured anxiety better than Venham Picture test and facial imaging scale, which is likely because, in Venham Picture test, figures on the cards are very similar to each other and are very confusing. Moreover, all the figures in Venham Picture test are those of males, which may have caused problems for young girl patients to identify their state of dental anxiety. In facial imaging scale, young children misinterpret the facial expressions on the scale. Mobile technology creates an unparalleled ability to monitor daily operations and emotional shifts discreetly, all in high definition.

Smartphone health tools often provide the opportunity for instant reaction to the results of this tracking by offering updates on psychological health based on actual emotional state shifts. For all these objectives, this innovation has not yet been completely utilized, despite the fact that cell phones are one of the few types of technology that most people are carrying on nowadays.

This omnipresence means that cell phones provide a very normal and daily way of gathering knowledge about current emotional state. They are also a budget way of obtaining assistance that can transcend social and economic and regional limits with psychological problems.

## Conclusion

Throughout the dental world, the smartphone dental application has been shown to be quite helpful in reducing the fear and uncertainty of pediatric patients. We may also infer that cellular dental applications can be used as an alternative to traditional behavior modification therapies under the constraints.

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