ADOLHEALTH- Adolescent Health Awareness Application

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Abstract: **Adolescents is the time where a child becomes an adult, this age starts with the onset of puberty which is characterized by both physical and psychological changes. Often these times can be confusing to a teenager and due to the changes there will be lot of questions. Sometimes they have to deal with depression and peer pressure which can lead to severe steps like suicide attempt. We propose an android application which hopes to give answers to their questions not only regarding puberty but overall health issues and concerns.**

Keywords: **Adolescents, android, health, puberty, teenager.**

1. INTRODUCTION

THE well-being of the adolescent population is a key driver for achieving health for all which can no longer be ignored. Adolescence is a transitional phase between childhood and adulthood, characterized by a number of cognitive, emotional, physical, intellectual and attitudinal changes as well as changes in social roles, relationships and expectations.

The Ministry of Health and Family Welfare has launched a new adolescent health programme – Rashtriya Kishor Swasthya Karyakram (RKSK). The application is based on this health programme. The four areas covered under the project include Nutrition, Sexual and Reproductive Health, Non-Communicable Diseases & Substance Misuse and Mental Health.

This application will have two types of users. First, the health officers who will get the count of the users who have health issues. Second, adolescents or their parents who will get various information .

Through this application we are going to gather information which will help the health officers to know which part of the country requires more attention regarding adolescence health problem.

The information will be sorted according to various states in the country. This will be shown to them in graphical representation as well which will help them to understand well.

2. DATA COLLECTION

Survey will be taken based on various health related problems. Based on user's answers and their location we will get a sorted list of all those who are unhealthy as well as healthy.

This will be done based on four modules:

A. Nutritional Health:

Here, the aim is to get the count of people who are obese or underweight and providing them facilities.

The application will provide them a healthy diet plan accordingly and a calorie chart as well.

This is important as teenagers face problems like anorexia and bulimia which can also lead to death.

The second information we will get is the count of users who are suffering from anemia. Anemia is common among teenagers because of menstruation, early pregnancy, iron -poor diet. We will provide the user with detailed information about anemia, its causes and prevention.

B. Sexual and Reproductive Health:

Here, the aim is to get the count of users who are sexually active and do not have enough knowledge about contraception,

Sexually transmitted diseases and the users who had early pregnancy and undergone abortion.

By knowing the count, health officers could plan their step of action that from where they should start the awareness campaigns first.

The application will provide the users with enough information about various STDs and their prevention, pregnancy and contraception.

C. Mental Health:

Here, the aim is to get the count of users who are facing peer pressure or depression. We would also get the count of those who are addicted to tobacco or some other substance.

D. Non Communicable Diseases:

Here, we will get the count of those who are suffering from diseases like cancer, diabetes, hypertension, cardiovascular diseases, stroke.

By gathering all these information the application will show the health officers how many people are unhealthy in all the areas discussed above in graphical form. A lot of time is wasted in actual surveys. So, this feature will help them to take the survey easily and find out the count.

The application will give filtered records according to the health officer's need like he can see the count of adolescents who have less knowledge about contraception in a particular stare.

3.   HEALTH TIPS

The app focuses on overall health of adolescence. The information provided to them should be updated one. The application will give daily health tips. These tips includes healthy eating tips, sex and health advice etc.

This will be achieved by using the GCM facility. GCM is a facility provided by Google which allows the developers to send push messages from developer servers.
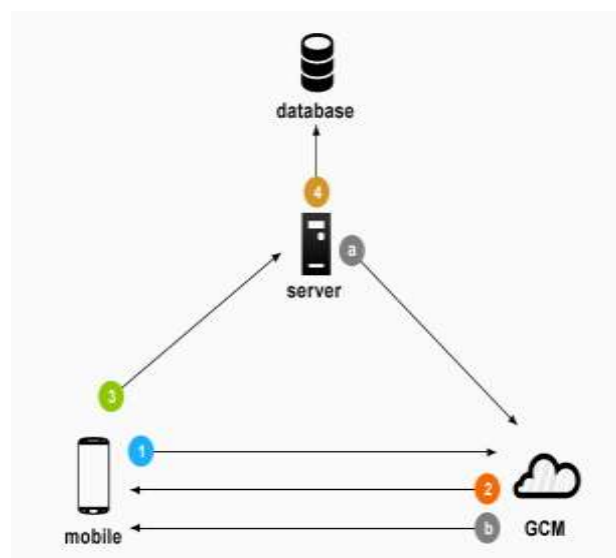

Fig 1. GCM Working

1. First android device sends sender id, application id to GCM server for registration.

2. Upon successful registration GCM server issues registration id to android device.

3. After receiving the registration id, the device will send this id to our server.

4. Our server will store this id in database for later usage.

a. Whenever a tip is to be send, our server sends a message to GCM server along with device registration id.

b. GCM server will deliver that message to respective devices using the id.

We chose GCM as it delivers the messages in a reasonable timeframe (10s).

4. SYMPTOM CHECKER

The application will provide the user with an efficient symptom checker. The user have to enter few details like sex, age group, body part which they want to check.

The application will then provide the user with a list of various symptoms from which the user can select the symptoms he/she is facing.

According to these symptoms the application will predict the diseases and their respective probability. It will also provide the user with more detailed information on the predicted diseases and their treatment.

5.   HEALTH GUIDE

Health Guide will provide the teenager with general information which is necessary for them. This information will be static. It will also include several health calculator to keep a check on their health.

This information will also be divided into four main health areas- Nutritional Health, Sexual and Reproductive Health,

Mental Health, Non Communicable Diseases.

Nutritional Health:

Nutritional Health among adolescents is much needed as the body is going through changes and preparing for adulthood. During this phase nutritional health plays an important role in proper growth of the body. The objective of Nutritional Health is to reduce the prevalence of malnourishment among adolescent girls and boys and reduce the prevalence of iron deficiency anemia among adolescent girls and boys.

In this module we will provide the user with various health calculators. Such as BMI calculator, Anemia testing, health tracker, weight tracker.

Body Mass Index is the measure to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value. It is calculated as

Individuals with B.M.I less than 18.5 are considered under-weight or thin and B.M.I over 25.0 are considered over-weight or obese. Being over-weight or under-weight can cause problems and hence it is important to keep a check on the weight.

$$\text{BMI} = \frac{\text{mass}_{\text{kg}}}{\text{height}_{\text{m}}^2} = \frac{\text{mass}_{\text{lb}}}{\text{height}_{\text{in}}^2} \times 703$$

Fig 2. BMI Formula

A weight tracker can be used to record weight which can be graph of weight against date, recording the individual's weight at that particular date.

Growing children can keep a track of their height in the same way by recording their height. Such tracking would help us recognize the individual's body pattern.

Iron Deficiency Anemia is when the amount of mineral iron is below the required level. Iron is important for synthesis of protein called hemoglobin. Anemia is when the level of R.B.C is lower than usual. The level of iron in blood if below 7.0g/dl indicates the individual is severely anemic and if below 12.0 g/dl indicates the indsidual is anemic.

This will help the user to keep track on his/her health.We will also provide with detailed information about the various deficiency diseases.

Sexual and Reproductive Health:

In this module we will provide the user with information about various changes that a child undergoes during puberty, contraception, pregnancy and various STDs.

Adolescents is the period during which the body goes through changes and development and functioning of reproductive health begins. This phase often leads the adolescents confused and curious about the developments. It is extremely important to educate them and answer their questions.

Awareness and proper guidance can play an important role in the upbringing and growth of the individual. Awareness is mostly needed in rural areas where the privilege of a good medical care is rare.

S.R.H can be considered like a spectrum, it involves all the changes that occur in the body during puberty to pregnancies and reproductive health.

Our objective is improve the knowledge, attitude and behaviour regarding S.R.H. To educate about teenage pregnancies and the consequences of it. To educated about Sexually Transmitted Diseases. To spread awareness of safe sexual behaviour to prevent unwanted pregnancies and spreading of S.T.Ds. To improve birth preparedness, readiness and early parental support. Impart knowledge on abortions and complications surrounding it.

Mental Health:

This section deals with the various mental problems a teenager faces such as peer pressure, depression, substance abuse and various other mental problems.

Due to the hormones a lot of psychological changes keep going on. Every individual reacts differently but to a vast majority fall prey to pressure and hence come under mental stress.

During this stage there is need to fit in and often this comes from peer pressure, family, and often this pressure leads to stress, anxiety and when individuals don't stand up to the expectations of others it can give rise to sadness, feeling of hopelessness or depression.

It is important for family members to be friendly and understand and be a support system and make the adolescents understand these feelings are common. If they constantly feel hopeless or depressed they need require medical help.

The percentage of adolescents under mental stress is quite high and while medical care is available, rural areas are still deprived of such facilities.

Non-communicable Diseases:

N.C.D includes hyper-tension, cardio-vascular diseases, stroke, and diabetes to name a few. Our objective is to bring behavioral changes among adolescents to prevent such non-communicable diseases.

The percentage of adolescents into smoking or second-hand smoking, tobacco or other such substance abuse is increasing and this results in diseases such as asthma or other lung problems along with variety of illness.Tobacco use also results in hyper-tensionwhich is actually high blood pressure. Obesity also plays an important role in cardio-vascular diseases, hyper-tension, it adds to the issue.

Adolescents should be encouraged to maintain a healthy lifestyle which is a balanced diet, maintaining healthy weight and daily exercise and be told about the health risks this diseases pose. A sedentary lifestyle can aggravate the condition or sometimes be the cause of it. Daily exercise reduces hyper- tension, cardio-vascular diseases and prevents diabetes or helps maintain the appropriate blood sugar levels.

6. CONCLUSION

Young adults are the future and a great resource for a nation. Their health is definitely a priority. Our objective is improved adolescents well-being and health care specifically targeting the rural areas. As rural areas do not focus on adolescents. It is very important to make them aware about the importance of education and basic health care.

Providing them information is one step in giving the rural people an opportunity to improve their lifestyle.

Abbreviations and Acronyms*:*

RKSK Rashtriya Kishor Swasthya Karyakram

GCM   Google Cloud Messaging

BMI   Body Mass Index

STD   Sexually Transmitted Diseases

NCD   Non -Communicable Diseases

SRH   Sexual and Reproductive Health

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