

REVIEW PAPER

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ABSTRACT

Now days, due to many factors people around the globe are neglecting their health and are suffering from many diseases. The reasons of these are many that include relying on fast foods, unhealthy eating habits, work pressure etc. To combat the medical problems, despite of their busy schedules people visits hospitals and health care clinic. To save their times and efforts, Health Recommender Systems (HRS) have been employed in health care field. This system provides support to ill people in many ways. Many researchers have found out different HRS based on different algorithms. This paper is an attempt to review some papers based on HRS.

Keywords: Diseases, Eating Habits, Health Care, Health Recommender Systems, Symptoms

I. INTRODUCTION

Since people are neglecting their health due to busy work schedule and other reasons, their deteriorating health has become a serious issue. According to surveys in The United States of America conducted by PewResearch Internet Project [2], it has been shown that one in three American adult have gone online to search for information about some medical condition. Many individuals are now moving towards internet for consulting about their medical conditions. Some may search for the symptoms on the internet or share among social networking sites [2]. Hence in order to facilitate the user, recommending systems have been deployed so that an easy counseling can be done on the basis of the information provided by the user. The recommender systems are based on three aspects: the content based approach, collaborative approach and data mining algorithms. The papers have also explained the future aspects of their works and the challenges and opportunities for the same. The detail explanation is given below.

II. HEALTH RECOMMENER SYSTEM

A recommender system is a system that suggests items of interest of user [4]. A health recommender system is a system developed that will recommend various desired options that may suite to the inquiry as asked by the user. It is characterized by the information given by the user, asked by the user and the solution that can be given to the user based on many algorithms used. Many researchers [5,6,7] have argued that if the information given by the user about his/ her medical problem, his diagnosis reports details can be clubbed with many medical sites (FedMed etc.), recommendations can be given that can ease the user. The types of approach that can be used to design a health recommender system are :

1. Content based approach (that works on the ratings given by a number of users to a number of products in the past).
2. Collaborative approach (try to determine other users that have inquired the same text as the user).
3. Information retrieval.

4. Hybrid approaches.

Since sharing information regarding an individual's medical problem is a personal choice, collaborative approach is not highly recommended in health recommender systems. Despite of many challenges, recommender systems have found their way in health care field and in personal health systems that deals with providing information trade-off between doctor and patient. Since health recommender systems have many models many authors have adopted different algorithms in designing different recommender systems.

III. SURVEY REPORT

The PewResearch Internet survey has conducted survey in The United States of America regarding the usage of internet to gather information regarding some medical condition [2]. It has been found by the survey that a large number of adults are searching internet for symptoms, diagnosis and recommendation on internet about some medical conditions either for themselves (39%) or for others (39%). The survey has also portrait that many found that their findings on the internet has been confirmed by the consultant doctors (41%). Many found that some findings have been denied (18%) and many did not consult to the concerned physician (35%). Hence the paper has shown that internet has become an important aspect of consultation for the medical help among adults of USA. This also shows that people are searching for health care data about those who are showing the same symptoms as they are. Hence it can be inferred that adults are initially diagnosing regarding their health issues on internet before going for the consultations of the doctor.

IV. USE OF HRS IN MEDICAL FIELD

Different models of the health recommender systems have been suggested to combat problems that are lifelong. The author of the paper [1] has suggested use of recommender systems for the parents of the children that are suffering from Autism. Autism is a lifelong situation in which a person shows different symptoms. It has been suggested that use of social sites can facilitate clinics and parents of such children to communicate with other families and can share some of their problems and can get the recommendations regarding the problem. The author has also suggested that this will lead to a healthy communication between the families and they can then share their progresses and difficulties on the social network operated by the use of mobile phones. The use of SVM (Support Vector Machines) has been shown. SVMs [8] are based on structural risk minimization principal. Author has also conducted experiments related to autism behavior. The different symptoms shown by the autistic children are categorized and some sets are formed giving values to the most used words. The explanations derived from the experiments can be used to assess the problems given by the parents and then it can easily grouped and recommendations can be made. The method used by the author was machine learning and approach given by author was explanation based.

Recommender systems also find its existence in conditions regarding eating habits of people. The author of paper [3] has suggested that recommender systems can be deployed in giving recommendations to the people about the food that are good for them and bad for them. The approach given by the user is both content based and collaborative based. The author has given the procedure as the information given by the user about their heating plans, the data mining algorithm and then the healthy food recommendations. The traditional information retrieval technique is used to facilitate the user in obtaining information. The database design is

done by using HTTP. It has been shown that a recommender system can be develop using website that can take orders from the user and can give information to them about the food that are healthy and good for them.

V. CONCLUSION

The papers that have been reviewed are based on use of health recommender systems and give different models to design HRS. use of internet and social networking sites have also shown. The survey conducted in the paper gives information about the inclination of the adult towards internet for their personal diagnosis before going to clinic. Hence it can be concluded that health recommender systems are gaining their places in health care field and use of them will facilitate a user about the information that is been searched.

VI. FUTURE WORK

The approach given in the paper can be used differently to design many health recommender systems for different use. Medical field is too vast that scope of recommender system is large enough for more research and more models. Many models can be hybrid together to open up gates for the user to seek information about many dimensions in one model.

VII. LITERATURE SURVEY

The literature is taken from the papers under review. Help is also taken from the cross references of the papers. Internet is also been searched for the cross checking of the information in the papers. Wikipedia is consulted for the technical terms in the papers. Search engines like Google and Yahoo has been used.

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