# Abstract

Introduction

The organizations investing in building mobile based health-related applications need to understand factors influencing user acceptance and sustained user engagement. The user engagement can be defined as an assessment of an individual's response to a type of feature or a service within the health app. User acceptance testing is a formal process in which actual end-users participate and validate the functionality and provide feedback around usability, performance, features, etc. to the development teams.

The objective of this study is to understand the impact factors that can help promote user acceptance and continuous user engagement in health and well-being applications. The study also analyzes the general cognitive motivators and attempts to identify a user segmentation strategy that can be utilized to create targeted promotions.


Methods

English-speaking participants aged 18 years and above using any health app were recruited for the interview from the Rhein-Neckar metropolitan area, Germany. An instrument named 'Health orientation questionnaire' was prepared to gain a deeper understanding of cognitive factors driving participant's intrinsic motivation and health orientation. The instrument contained five different Likert scale types (consisting few Likert scale items) namely 'Health consciousness,' 'Health information orientation and eHealth literacy,' 'Health Status Tracking,' 'Extent of health app use' and 'Intention to continue use.' The results of this survey were visually analyzed using the stacked bar chart. Using the existing research and existing frameworks of TAM (Health Information Technology acceptance model), HITAM (Health Information Technology acceptance model), MARS (Mobile Application Rating Scale), etc. a semi-structured interview guide was created covering the qualitative aspects of this study. Six step thematic analysis approach was utilized to capture the qualitative theme of user experience and factors influencing users' behavior.


Results

In total 10 participants (4 females, 6 males), who were all users of health and well-being apps participated in the qualitative study. Four of the participants used iOS platform, 4 used Android-based apps, and 2 of the participants reported using both the platforms. Standard health app delivered by the platforms and activity tracker was most commonly used application (4 participants each). The results of 'Health orientation' section identified the participants as 'intrinsically' motivated. These participants showed the high inclination towards 'eHealth Literacy' and 'health information orientation'. Most of these users considered 'self-monitoring'

and 'health status tracking' as an important function of an application. The thematic analysis of data of this 'intrinsically motivated' group revealed certain common and some unique themes when analyzed for engagement and acceptance of health apps. The common themes are categorized under the heading of automation, personalization, trust and privacy, inherent app quality, and performance.  Some of the unique themes that were relevant to the context of user engagement were participation in the app based 'health communities and incentives' and 'crowdfunding' campaigns.

Conclusions

The interviews provided insight into the range of user experiences, major hindrances and key barriers faced by the set of participants who can be identified as 'intrinsically motivated' user group. A user segmentation technique based on cognitive factors can be utilized to design effective promotion strategies by identifying different user segments. The deeper understanding of a consumer segment's experiences and expectations can inform the design of health apps to encourage user acceptance and engagement.