



## Patient Personas for Better Design & Health

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### Abstract

In Human-Computer interaction (HCI), User-centered design (UCD) systems are significant. To make a useful and usable product, it is important to understand who exactly the user is. In the effort to make better user-centered designs, the concept of Persona was introduced. Persona is the new powerful methodological tool that focuses on empirical data of the user for developing a system, a product, or a service. In specific to our research based on health, our focus is on studying different kinds of patients and building their personas. These patient personas will be helpful for the doctor to understand how to counsel and guide patients towards self-health management. They will not only be beneficial in improving the patient-doctor relationships but also be helpful in product/service marketing campaigns, resource allocation, and website or article content. In this study, data was collected from 50 patients using a questionnaire. The questionnaire involved queries related to the patient's demographics, lifestyle, behaviors, goals, fears, frustration, and motivations in life. The data was observed and people with the same behavioral patterns were mapped into clusters. Personas were then built and refined.

### Introduction

User centered design (UCD) has its significance in developing a product or a software that is usable, useful and gives patient the confidence to manage his/her health (1). The major rule of developing a UCD is to base the design of the product on understanding the user. In development of UCD method to adapt with eHealth, Personas were found to be one of the best UCD method. Personas are derived user models that are made based on real data taken from the patients (2). It is considered as a tool of communication with the stakeholders.

According to International Standard 9241-210 on UCD, a product design starts with the realistic definition of the user and their perspective (3). Not much details have been provided about who to get this empirical information of the user, but one approach is to develop Personas based on data of the intended user (4).

Cooper introduced the term, Personas in the field of Information Technology (IT), defining it as a "hypothetical archetype of actual users...defined with significant rigor and precision" (5). It is

about studying and making archetypes of the actual intended user. Personas can benefit in supporting product design, increasing communication between the stakeholders and providing a framework for the developed system.

Personas equip the designer with an important user input during the initial design stage strengthening the connection between the user and the design

- Personas stresses on focusing on the end user, its aim, motivation and goals. By building personas, the requirements of the user become clear. The time and effort that is taken to investigate, break down and record the personas cannot be underestimated (6).
- Persona gives a technique for summing up the types of users incorporating their lifestyle, work and social environment.
- Enables the designers to remain in the shoes of the user.
- Using persona will provide a framework for how a project should be designed, it will remove all the doubts and confusions that a designer might have.
- The product will focus on satisfying user needs, instead of adding every kind of feature that designer think might be helpful for the end user (7).

The objective of building personas is to help the designers to understand the user better.

## Literature Review

According to Cooper [5], persona is the precise description of users, their personal details and what they wish to accomplish in life. It is the detailed representation of the user distinct behaviors, goals and motivations of a group while using a product, which can be observed and identified. For example, for designing a mobile application for old people to manage their medications. The designer should observe several old people to know about their needs, range of medications they take and their technological competency, make personas and design according to the patient's capacity.

According to Roberts et al. the usability of applications depends 10 % on its graphical aspect, about 30% on its user friendly interaction and 60% on the characteristics of application of meeting the user mental model. In order to develop such applications that are fully usable and understandable by the user it is important to know the user, his/her needs and issues he/she

faces [8]. It will capture the essence and challenges faced by the user by creating a reasonable prototype that matches their conceptual models.

In a Veterans related project, seven personas were developed based on different personal background, demographics, education, needs, attitudes, and occupation (9). The project also explains how these personas can be used in future as well as how they can be further refined. Hall et al. studied and made maps of cancer patient's health changes to guide design (10).

In a study of older Chinese adults with diabetes, Researcher performed data collection and then qualitative analysis to create patient profiles. They developed two personas, a rural 68 year-old Chinese woman and an urban 63 year-old Chinese woman. He also explained, how these personas are beneficial for eHealth UCD Projects (11).

Valdez et al. emphasized on the importance of adding biopsychosocial approach to understand the patients and health consumers. The authors introduced a hypothetical persona based on the patient behavior and their surrounding social, work, environmental factors and technology that are a part of their everyday life (12).

Holden developed old heart failure patient's personas using quantitative methodology. He developed 6 personas of older patients with heart failure issues. He also added biopsychosocial variables for building their personas. He concluded that patients need to be understood well for an effective healthcare system (13).

## **Methodology**

An exploratory qualitative research was carried out. Persona is a User-Centered Design (UCD) method, which encourages active participation of real users in design process for a better understanding of user needs and problems.

A questionnaire was given to doctors, which had questions like; do they deal with every patient differently according to his/her requirements? Have they ever categorized their patients on the basis of how much they are motivated towards self-management of their health? 8-10 doctors filled the questionnaire saying that Yes, they try to deal different patient in the required way but they haven't categorized patients or dealt with patients on the basis of their motivations towards better health management.

Our study was basically based on patients at a Hospital in KPK. A data of 50 patients was collected. The interview survey was based on a questionnaire which was based on the patient personal information, demographics, illness, their symptoms, what does he/she do to take care of his/her health, his/her motivations towards better healthcare, fears and daily lifestyle routine.

As the data was being gathered. The data was constantly being read and important distinct behavioral variable were noted down. Recurring patterns of behaviors started to emerge among the patients and were then identified. Clusters were made on the basis of these different behaviors. Only the variables that differentiated significantly were put into the form of persona and their descriptions were added.

## Results

Personas were built on the basis of the patient education and technology understanding. The Primary Persona is Ali, He was a notable patient, who was good with technology, used all the gadgets and is pretty good at managing his health. Whereas there was patients who didn't understand technology at all and needed to go to a hospital even for a Blood pressure checkup. Then there were also some patients who felt depressed and were not motivated to take good care of his/her health.

With these range of intended users of a product based on UCD Methodology, Persona. A designer, designing a system should know that every system has different kind of users. The system/product should be designed to meet the specific user needs. The patient should not adapt to the technology instead the portal should be according to the patient requirements and style. The system should have a way to educate and motivate the patient to take medicines on time and encourage them to do better. Likewise, using these persona, a clinic system designed should have an option to categorize the patients on the basis of their understanding of their health management and motivation to religiously follow doctor advice. So that the doctor knows which patient needs to be counselled more than just talking about medications, which patient needs to be constantly checked upon and needs to be guided. Even since the masses don't use technology, we found in the study that they had a family member who can use technology for them. It just that they need to be guided properly. With these Persona's, it was

observed that patient wants that a doctor should give more time to the patients, listen to them, understand them, develop empathy and counsel them keeping their surroundings in mind.

## Future Work

Based on these patient personas, an authentic system can be developed, that has correct and proper factual answers to the questions that a patient has. The website should be designed keeping in view all the different kinds of users, so that the product design is according to every type of users.

Patient personas can also benefit the marketing of medical practices, medications, and treatments. Targeted marketing is very important. These personas will help understand what patient wants to know about, filling the gap in content, bringing traffic to your page. It will also improve the newsletter, email, messaging campaigns, and marketing strategies by shifting their focus on what the patient is looking for and connecting with him with a personal touch. Since Patient needs and requirements would be much clearer with these Personas, they can also be helpful in resource allocation. Making personas of the actual users is very beneficial in every aspect whether it's about educating the patient, enhancing doctor's practice style, web designing, marketing, software/product/service design, or development.

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