

Empirical Research on realizing, evaluating, and validating a conceptual breast-cancer e-portal model with Arabic content

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Abstract—this paper presents an empirical research that realizes a previous research of a conceptual breast-cancer e-portal model with Arabic content. The paper starts with briefing the previous research, after that, it highlights the gaps need to be bridged and the problems need to be solved. A real development of an e-portal prototype is done for achieving the research goal. This e-portal prototype has applied the conceptual model of the previous research.

Keywords- Empirical research; health e-portal; breast cancer e-portal prototype.

I. INTRODUCTION

People need information about any disease they need to detect, to prevent its occurrence, or to treat. This information need to be in a language that can easily be read by the target people [1-3]. Breast cancer is widely diffused among Arab women who do not have enough information about breast cancer, its causes or how can they detect it [4, 5]. This lack of information leads to lack of knowledge. In this regard, there is no enough Arabic content over the internet, while this content is available as a scattered data in separate websites or social media posts. This leads to lack of awareness that causes a severe drop in the number of women who go for a breast cancer test, which has a big bad impact on the numbers of infections and late detections, in addition to complexity of late treatments [6, 7].

A previous research has proved that there is a real gap summarized by lack of e-portals with Arabic content about

breast cancer [8]. This gap has caused problems concluded by: delay in the detection of infection, prevention methods shortage, fear of examination and treatment, difficulty in obtaining breast cancer information, and high cost of printed publications used for educating Arab women about breast cancer [8]. Therefore, the mentioned previous research [8] has come out with a model that constitutes a base for building breast-cancer e-portals with Arabic content. The model is briefed in section II.

II. THE CONCEPTUAL BREAST-CANCER E-PORTAL MODEL WITH ARABIC CONTENT

A previous research [8] has contributed in producing a conceptual model as a base for designing and building breast-cancer e-portals with Arabic content. As shown in figure 1, the model consists of four phases. The 1st phase focuses on problems' sources that need to be solved by developing a breast cancer e-portal with Arabic content, and these problems help in determining the modules to be included in the portal. The 2nd phase focuses on reviewing and collecting the literature, such as portals with similarities or Arabic web content. The 3rd phase refines these specifications before realizing it by a portal prototype. Eventually, the 4th phase focuses on testing, validating and evaluating the portal prototype to produce a breast-cancer e-portal with Arabic content.

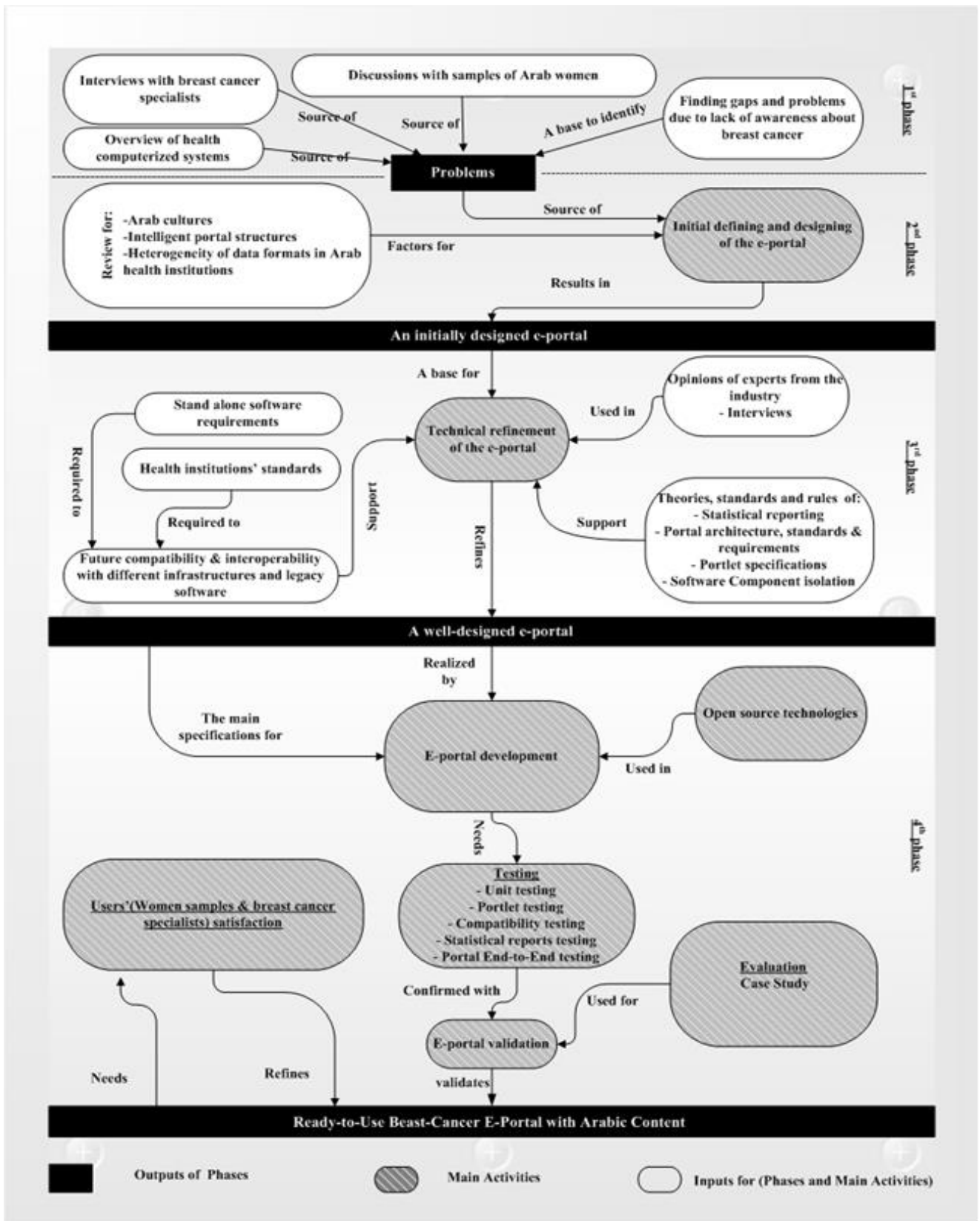


Fig. 1. Conceptual Model for Building Breast-Cancer E-Portals with Arabic Content

III. BUILDING A BEAST-CANCER E-PORTAL AS A REALIZATION TO THE CONCEPTUAL MODEL

Precise steps are done to design, develop, test and evaluate the e-portal that is built as a realization to the conceptual model (briefed in section II). This section shows the e-portal prototype details that are developed in this empirical research.

Figure 2 shows the landing page of the e-portal. This landing page that contains:

- The services of the portal including these categories: 1- Know about the portal; 2- Ask a question; 3- Get the help from experts; and 4- Contact us.
- Medical Articles that provide information about the essential information of breast-cancer.
- Medical doctors and consultants; that provides biographies about doctors and consultants.
- Survival experiences; that explore the experiences of several Arab women who have been infected by breast cancer and managed to recover and survive.

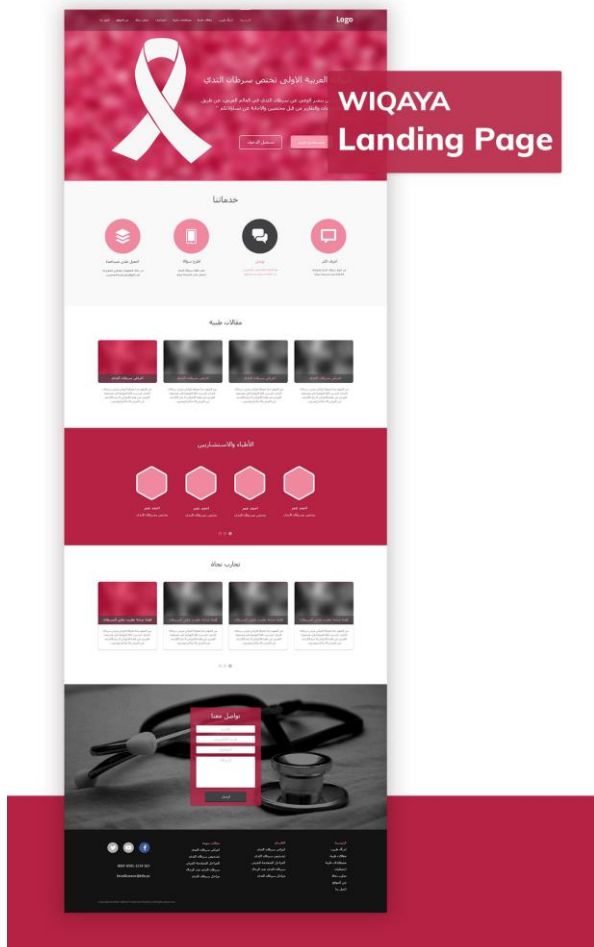


Fig. 2. Landing page of the e-portal prototype

Figure 3 shows the main wall that enables any user (Arab woman) to post her special survival experience; to be accessible publically for other Arab women, which enables her to have more information and to be hopeful for survival if she is already infected.

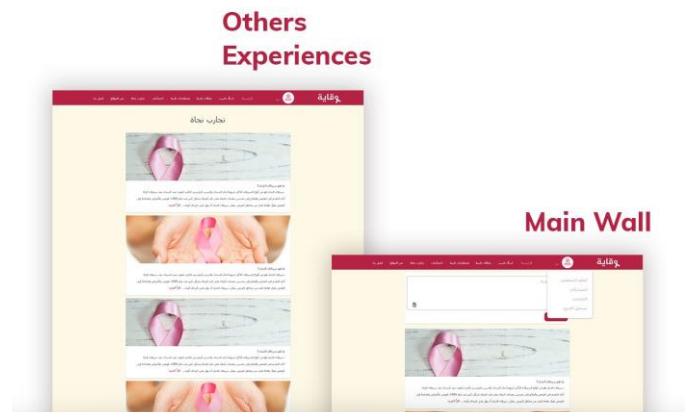


Fig. 3. Main wall of the e-portal prototype

Figure 4 is specialized for the interaction between the Arab women and doctors. It includes a chat room for online discussion, in addition to the ability to ask a doctor offline. Both online and offline discussions are provided with a profile page to know the identity of the doctor a woman wants to chat with.

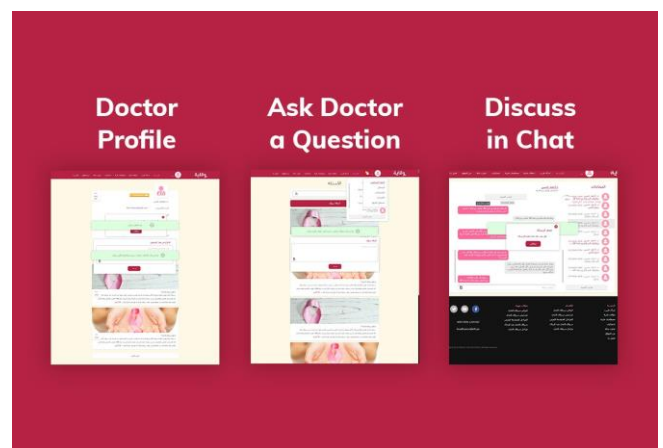


Fig. 4. Interaction page of the e-portal prototype

Figure 5 shows statistics about breast cancer. These statistics can be generated from different sources using different methods. They can be generated from health database systems using data warehouse and business intelligence tools, or directly imported from other websites or portals, or even can be prepared from the scratch

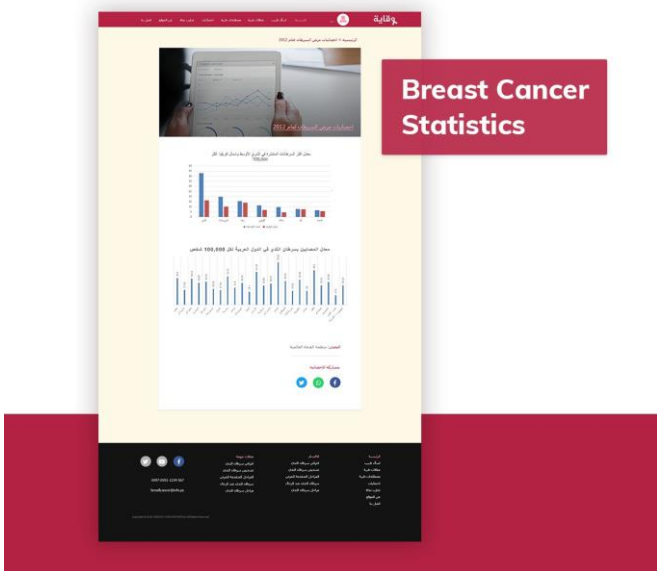


Fig. 5. Sample statistics about breast cancer

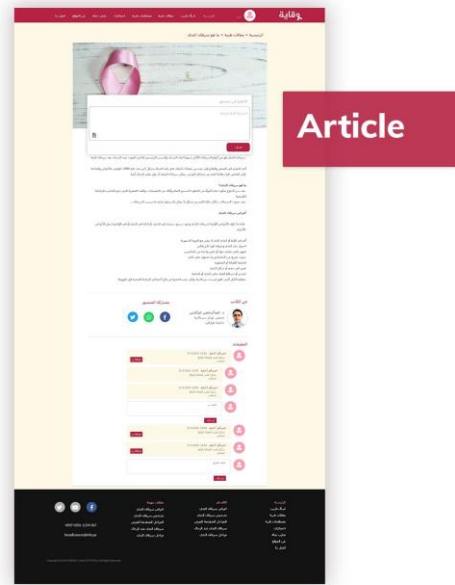


Fig. 7. Posted articles waiting approval/rejection

Figure 6 shows the articles an Arab woman needs to know about breast cancer; to help her be familiar with breast cancer awareness, early detection, and effective treatment.

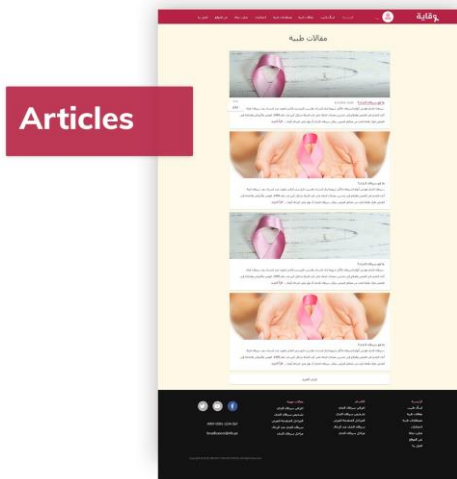


Fig. 6. Arab women articles

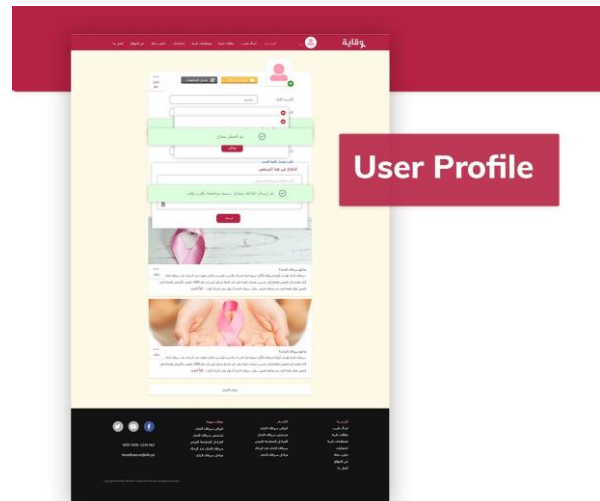


Fig. 8. User profile page of the e-portal prototype

Figure 7 shows articles that are posted by users. These articles are reviewed, approved/rejected by the portal admin. After approval, the articles with importance to Arab women are posted on the Articles page.

Figure 9 shows the sign up page that allows the user to register as a new user; either s/he is an Arab woman, a consultant or a doctor. The new user has to provide his basic information in addition to contact information or social media information.

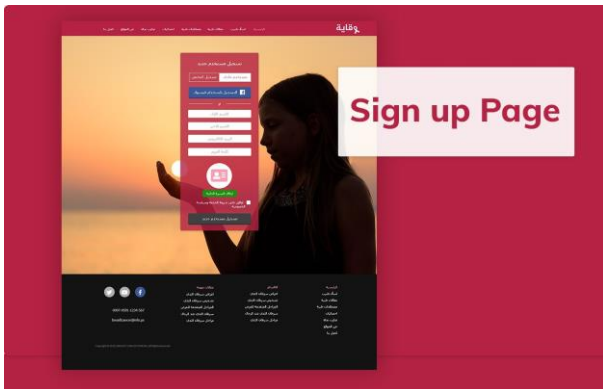


Fig. 9. Sign up page of the e-portal prototype

Figure 10 shows the login page for the e-portal

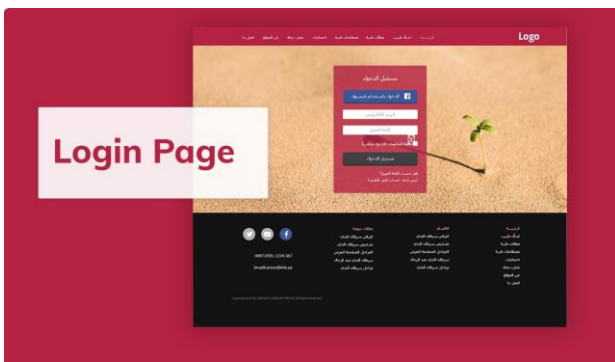


Fig. 10. Login page of the e-portal prototype

Figure 11 shows the medical terms that are important for the Arab women to understand; to be aware of the breast cancer information.

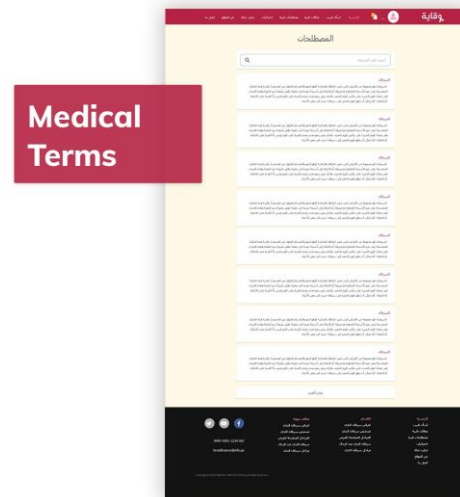


Fig. 11. Medical terms page

IV. EVALUATION

Twenty (20) Arab women are selected to fill a questionnaire about the satisfaction level of using the portal in addition to its importance. The ages of the women are between 18 and 70. 10 of them are from villages and 10 from cities.

20/20 of the responses are considered to be valid. The responses of respondents show a very good level of satisfaction. The evaluation process evaluates the percentage of satisfaction level of the respondents. Table 1 shows the average level of satisfaction among the 20 respondents.

TABLE 1. EVALUATION, AVERAGE LEVEL OF SATISFACTION

No.	PARAMETER	DESCRIPTION	25%	50%	75%	100%
1	Significance	The portal is significant in solving the information missing about breast cancer.				✓
2	Comprehensive portal	It covers all components an Arab woman needs			✓	
3	Interactive portal	There are online and offline interaction tools				✓
4	Consultation services	The page for doctors and specialists consultations; fulfills what an Arab woman could need				✓
5	Enough information	The Arabic content available is enough to make the Arab woman knowledgeable about breast cancer.			✓	
6	Easy to use	The portal is easy to use			✓	

The overall evaluation process showed that the level of satisfaction of the portal was accepted by the respondents with an average satisfaction percentage of 87.5%.

V. CONCLUSION

This paper has realized and validated a previously published research; by developing an e-portal that has realized a conceptual model about breast-cancer model with Arabic content. Therefore, this is an empirical research that focuses on realizing and validating an available concept. The developed e-portal has approved the concept. The e-portal is evaluated with a very good satisfaction level. This portal has followed the model that has been explored in the previously published research.

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