Web Based Online Nutrition Consultation System (Telenutrition) at the Nutrition Care Center eaching Factory (NCC-TEFA)

by Gamasiano Alfiansyah

Article

Web-Based Online Nutrition Consultation System (Telenutrition) at the Nutrition Care Center eaching Factory (NCC-TEFA)

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Abstract: The Nutrition Care Center (NCC) is a Politeknik Negeri Jember Teaching Factory (TEFA) that provides nutritional consultation services to clients. NCC aims to provide nutritional services to Polije employees and the wider community. However, NCC does not yet has an online nutrition consultation system that supports services for clients. The aim of this research was to design and implement an online nutrition consultation system (telenutrition) at NCC Politeknik Negeri Jember. The method used was Scrum which has the stages of user stories, product backlog, sprint planning, daily scrum (sprint execution), sprint review, sprint retrospective. Research informants consisted of the Head of NCC and NCC consultants for identifying user needs. The result showed that telenutrition facilitated clients to get services. Meanwhile, telenutrition also facilitated nutritionists to educate and monitor client nutrition. It can be concluded that the system has been designed and is ready to be implemented at NCC.

Keywords: NCC; Scrum; Telenutrition

1. Introduction

The Nutrition Care Center (NCC) is one of the Teaching Factories (TEFA) at Politeknik Negeri Jember (Polije) that provides nutritional services for employees and the community at large [1]. One of NCC's services is a nutritional consultation service. NCC has nutritionists who provide services related to fulfillment of balanced nutrition. Nutrition consultation services are needed by the community due to health problems caused by nutritional intake (deficiency and excess of certain nutrients), inappropriate information and food choices, and public ignorance regarding nutrition and food [2]. Nutrition consultations are useful in preventing and reducing weight in obese patients, and reducing stunting and malnutrition [3]–[9].

However, NCC's nutritional consultation services are offline so clients have to come to NCC to get services. Meanwhile, nutritional problems are not only suffered by Polije employees, but nutritional problems in Indonesia are still high, including malnutrition, overnutrition and other nutrition-related problems. Nutritional problems among Polije employees are shown in the following figure.
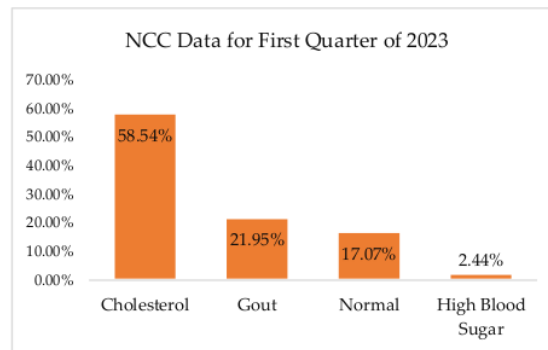
Figure 1. Polije Employees Nutrition Problems

Therefore, appropriate intervention is needed to reduce these nutritional problems through online nutrition consultations (telenutrition). Telenutrition is believed to provide benefits to clients, facilitate for nutritionists, and is more cost-effective compared to offline nutrition consultation services [10]–[14]. Previous research has proven that telenutrition is effective in obese and stunted patients [15]–[18]. Therefore, the aim of this research was to design and implement a website-based online nutrition consultation (telenutrition) system at Tefa NCC Polije.

The method used was the Scrum method with stages consisting of user stories, product backlog, sprint planning, daily scrum (sprint execution), sprint review, sprint retrospective [19]. Telenutrition can improve the quality of services and make it easier for clients to get services, especially for clients who are constrained by distance and busyness at work, make it easier for nutritionists to monitor clients' nutritional status, and can reduce nutritional problems in the community. The output of this research was a website-based online nutrition consultation system (telenutrition) that has a client registration feature, clients can choose the nutritionist they want, clients can carry out online nutrition consultations, and nutritionists will continue to monitor the client's health developments.

2. Materials and Methods

This study was research and development (R&D) that aimed to design and implement a website-based online nutrition consultation (telenutrition) system at the Nutrition Care Center Teaching Factory (NCC-TEFA) Politeknik Negeri Jember. The informants in this study consisted of 1 head of NCC and 5 NCC nutrition experts to identify the needs of telenutrition users. The method used is the Scrum method according to the stages in the figure below.
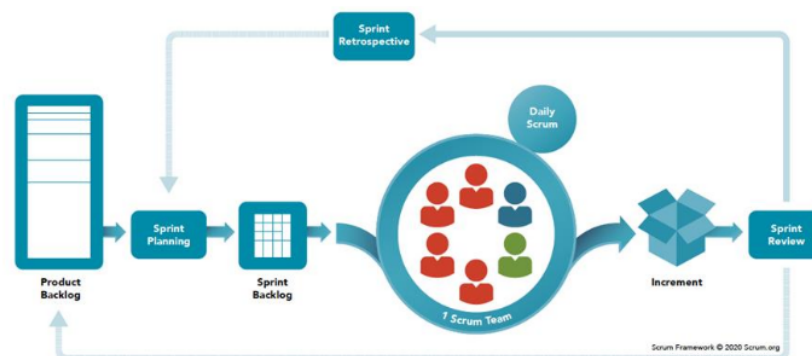

Figure 2. Stages of the Scrum Method (source: www.scrum.org)

The Scrum method has stages including user stories, product backlog, sprint planning, daily scrum (sprint execution), sprint review, sprint retrospective [19]. The scrum stages in this research are described as follows:

1. User stories
   User stories explain who will be the users of the system along with their tasks and goals. Users of the telenutrition system consist of patients, nutritionists and admins.
2. Product backlog
   The product backlog describes a collection of features to determine system work priorities.
3. Sprint planning
   At the sprint planning stage, a sprint activity plan is created that will be carried out by the Scrum team over a certain period of time.
4. Sprint backlog
   The sprint backlog contains a description of each feature into a more detailed task. After one feature in Sprint Planning has been completed, other features will be continued in the next sprint.
5. Daily scrum
   During the sprint, there is one meeting that is always held by the Scrum team.
6. Sprint review
   Sprint review ie the scrum team shows the results of the application to the product owner and scrum master to find out whether the results are in accordance with the product backlog.
7. Sprint retrospective
   The Scrum team carries out evaluations during the work process so that the future sprint process will be better.

3. Results and Discussion

This telenutrition system or online nutrition consultation system is named NutStation, thats a nutrition consultation service platform owned by NCC-TeFa. This platform can serve nutritional problems including:

1. Nutritional assessment: an assessment of nutritional status and food intake, food planning, monitoring and evaluation.
2. Analysis of medical checkup results. For example, based on laboratory results showing high sugar levels and high uric acid, clients can consult about what foods are recommended and what foods to avoid.
3. Disease-specific diet: dietary adjustments that must be made for people with certain diseases such as diabetes, hypertension, hypercholesterolemia, heart disease, kidney disease, and others.
4. Weight management: through this NutStation, clients can consult about weight problems, both for weight gain and weight loss.
5. Infant and child nutrition: healthy diet according to children's nutritional needs, such as thinness, obesity, stunting, dislike of vegetables, breast milk, complementary foods, nutritional status, intelligence in toddlers, etc.

The NutStation system can be accessed at the URL: https://nutstation.vercel.app and there are 3 main menus, ie Home, About Us, and Services. The interface of the system is shown in the following figure.
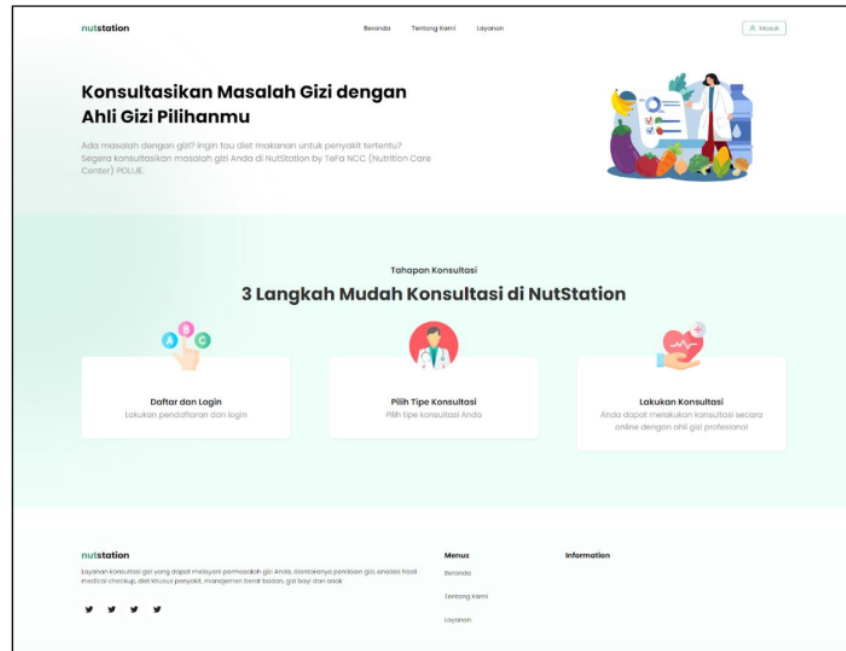
Figure 3. TeleNutrition Home Page

If the user has registered and logged in to this application, consultation options will appear, ie general consultation and special consultation. General consultations include diet programs, nutritional value analysis, etc. Meanwhile, special consultations cover consultation programs based on certain diseases that require certain food treatments based on the user's condition.
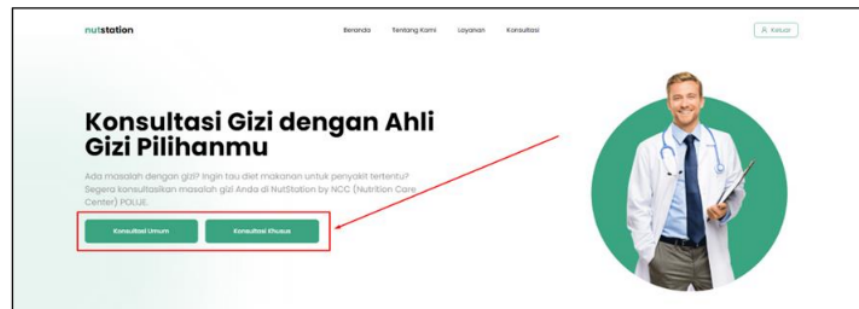

Figure 4. Consultation Menu

Nutritionists can see the queue list of patients who want a consultation. So to serve the patient, the nutritionist can press the "Handle" button.
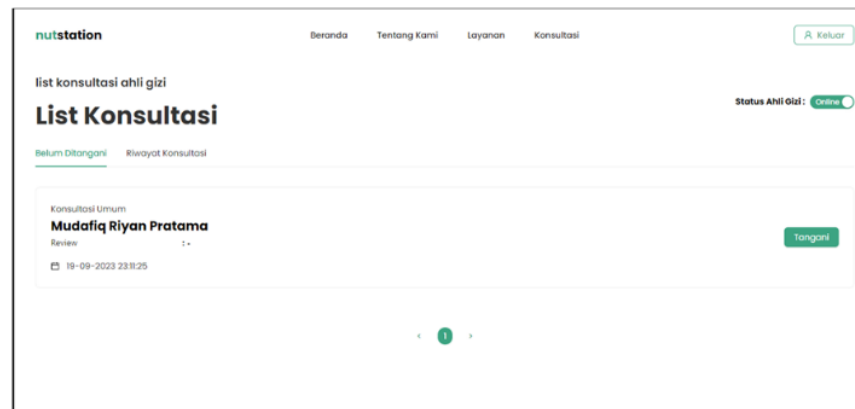
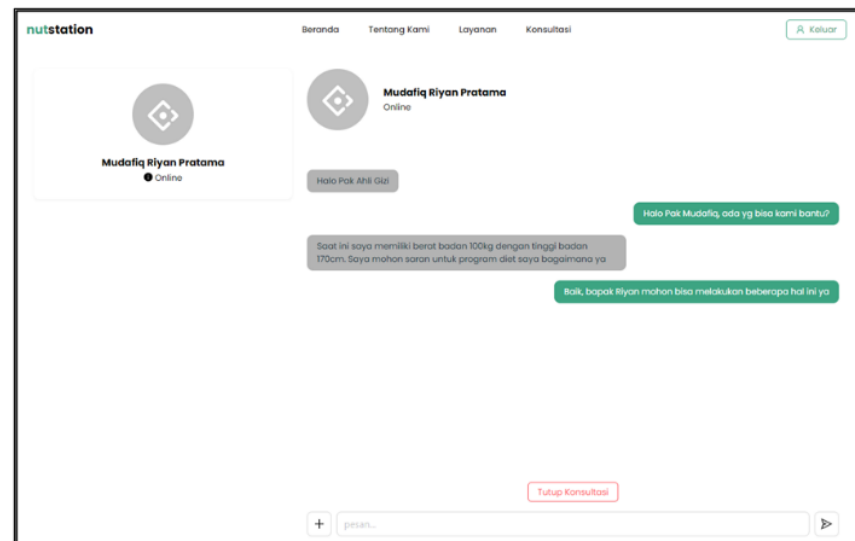**Figure 5.** Nutritionist Page to Serve Patients

Figure 6. Nutrition Consultation Chat Service Page for Patients

On the chat page, patients can directly interact with nutritionists and consult on patients' nutritional problems, whether related to diet programs or special diets for certain disease problems.

4. Conclusions

This study carried out the design and implementation of a website-based online consultation system (telenutrition) at the Nutrition Care Center Teaching Factory (NCC-TEFA) Politeknik Negeri Jember. The results of our research showed that the telenutrition system has been completed and is ready to be used by users, both clients and nutritionists. However, this system needs further development to add necessary features such as Android-based telenutrition.

5. Acknowledgements

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