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Original Research Article

OPTIMIZATION BASED ON SATISFACTION WITH THE USE OF THE NATURAL MEDICINE INFORMATION SYSTEM (SI-OBAL) IN TRADITIONAL MEDICINE SERVICES AT SEMARANG HEALTH CENTER

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ABSTRACT

Introduction. Public Health Efforts have been regulated in the Minister of Health Regulation on Health Centers, which is an activity carried out by health workers to maintain and improve health and to prevent disease aiming at families, groups and communities. In the context of these health efforts, activities are necessary for the utilization of natural medicines, by facilitating access to reliable information for the treatment of minor illnesses by health workers to be conveyed to the community. One of the works in the form of an application that helps pharmaceutical workers to obtain information on natural medicine quickly and precisely is called SI-OBAL (Sistem Informasi Bahan Alam/Natural Material Information System) web-based which can be used by pharmaceutical workers. The purpose of this research is to determine whether user satisfaction for optimal utilization of SI-OBAL in traditional medicine services at health centers in Semarang. **Method.** The method used was a prospective survey method with qualitative data measured by number and percentage. The population used was all pharmacy vocational staff working at the health center in Semarang. The method used to measure satisfaction is McLean and DeLone six parameters. **Result & Analysis.** The results of the research indicate that from the aspect of satisfaction measured, the results are 89.55% of pharmacy vocational staff are satisfied and very satisfied with having accessed SI-OBAL. **Discussion.** The optimization of health efforts in the community has significantly improved with the implementation of SI-OBAL in Traditional Medicine Services at the Semarang Health Center. This improvement indicates that the system effectively supports their pharmaceutical services, particularly in providing independent care using traditional medicine.

Keywords: SI-OBAL, Pharmacy Vocational Staff, Satisfaction

INTRODUCTION

Activities in health care facilities are not only curative (treatment) and rehabilitative (recovery after illness), but also include promotive efforts, which are how to keep people healthy and less prone to become ill. Therefore, the Minister of Health Regulation regulates the obligation of health workers at health centers to organize public health improvement efforts. Health service activities should include health promotion, disease prevention, healing, reducing suffering from disease, and restoring individual health. Health workers who devote themselves to this field are required to possess knowledge and/or skills obtained through education in the health sector. For certain types, special authorization is also required to conduct health efforts (Peraturan Menteri Kesehatan RI, 2019). One of these groups of health workers is pharmaceutical workers, which includes pharmacy vocational workers, pharmacists, and specialist pharmacists (Presiden, 2023).

Health workers directly concerned with drugs are pharmaceutical workers, who handle pharmaceutical preparations including drugs, medicinal materials, natural medicines, cosmetics, health supplements, and quasi-medicines. The focus of this research is on public health efforts using natural medicines. Natural medicine includes materials, ingredients, or products derived from natural resources such as plants, animals, microorganisms, minerals, or other materials, as well as mixtures of these natural resources. This research specifically focuses on plant-based ingredients. These materials, which have been used for generations or have been proven to be effective, safe, and of good quality, are used for health maintenance, health improvement, disease prevention, treatment, and/or health recovery, based on empirical and/or scientific evidence (Presiden, 2023).

Regarding natural medicines in Indonesia, there have been previous studies on the perception of their utilization in the community, where pharmacists act as the main source of information. As pharmaceutical workers who are in direct contact with consumers, pharmacists can provide information on how to use, ensure safety, and provide education about natural medicines. Although many people still use traditional medicines due to suggestion and hereditary beliefs, the active role of pharmaceutical workers as a source of information is very important. They can help the community by providing information on efficacy and proper dosage, as well as utilizing natural medicines as an alternative to cure minor illnesses or increase stamina (Suwarni, Widayati and Ayuningtyas, 2022).

This research focuses on pharmacy vocational workers as a sample to provide alternative tools for the need for quick access to information about natural medicines that can be used to concoct disease treatment by utilizing plants in the surrounding community. Quick access to information is realized in the form of a Natural Medicine Information System (SI-OBAL) application. The development of this information system involved input from respondents of pharmacy vocational workers in Semarang City, with consideration of construct (content), accuracy, appearance, ease of use, and timeliness. This website-based system is designed to facilitate the public in finding information about natural medicines, especially plants. This system can be accessed by users through the web address

https://siobal.sijahe.com, with a menu of features that are easy to understand, includes information for 46 types of disease complaints and is equipped with 65 images of plants, and has a simple interface according to user needs (Suwarni, Modestus, Aulia, 2024).

Information systems do not necessarily become useful and become an alternative solution to the problem of speed of access to information and data. Several systems even become invalid and reliable when accessed because it is complicated to display and the data presented is not in accordance with the needs and unreliable as there is no scientific literature. User satisfaction can be measured using the McLean and DeLone method developed in 1992 with its theory of information system success. These elements include system quality, information quality, and use (Thoyib and Handayaningsih, 2020). In the ease of use function, user satisfaction is measured by the user-friendly aspects of using the system, including the process of entering data, processing data, and retrieving the information needed. Web-based systems are preferred because they can be accessed anytime and anywhere, especially when interacting with patients. In addition, user-friendly interface and language are also important factors in terms of ease of use (Suwarni, Atmodjo, *et al.*, 2023).

METHOD AND ANALYSIS

This research is a descriptive qualitative research by using a prospective survey method. The research used a questionnaire instrument with information system user satisfaction parameters with qualitative data quantified by number and percentage. The population used is the entire pharmaceutical vocational staff working at the Semarang Health Center, with a sample according to the inclusion criteria, those who are willing to complete the questionnaire sheet for the survey of satisfaction with the use of information systems.

RESULT

This research is a further research project that has become the work of a Natural Medicine Information System (SI-OBAL) in collaboration with practitioners creating information systems. The previous creative work that was carried out began with a creative idea of how to come up with a young and contemporary information system on natural medicine that was in contrast to existing information systems. The previous work was SIJAHE which also contained displays and features of natural ingredients and contained properties but the design concept displayed was formal and had been widely accessed by health workers, especially pharmacists (Suwarni, Ayuningtyas, *et al.*, 2023). Activities carried out in the PKM (Student Creativity Program) with internal funding from the Nusaputera College of Pharmacy created SI-OBAL which is designed to provide a lightweight, simple appearance and more diverse features that are more accessible to the younger generation for 46 disease complaints and consists of 65 plant images with a simple appearance and according to user input needs (Suwarni, Modestus, Aulia, 2024).

The next step is to conduct counseling for pharmacy vocational staff, which has been carried out by gathering them at the Semarang City Health Office to present representatives from health centers throughout Semarang City for the

Socialization of the Natural Medicine Information System for activities that realize Public Health Efforts. Activities related to natural medicine are independent care for traditional health by providing education to the community to be able to improve their health status to prevent disease and cure minor illnesses and can restore individual health for patients of health centers or communities in their working areas. The socialization of the new system was assisted by the Association of Indonesian Pharmacists (PAFI) Semarang City Branch Management which was facilitated resulting in the extension activities being worth SKP Community Service with SKP from the Decree of the Central Java Provincial Executive Board of the Association of Indonesian Pharmacists Number 04.001/PAFI-JTG/SK/I/2024 concerning professional credit units for offline community service activities of PC PAFI Semarang City with the theme of Information System Support in Treating Behavior with Natural Ingredients.

The creative idea that emerged following the implementation of the Community Service activity was to evaluate whether SI-OBAL that had been designed and implemented could be well received by pharmacy vocational staff and have a positive impact on improving public health. Due to curiosity regarding the benefits of this system, researchers consider it necessary to optimize the use of SI-OBAL by measuring user satisfaction and looking for optimization steps.

In the Community Service activity, SI-OBAL user satisfaction is measured through the distribution of questionnaires that have been tested for content by experts. The questions in the questionnaire have also passed the validity and reliability test using the Spearman correlation test and the reliability test by looking at the value of r count and Cronbach's alpha. The validity and reliability tests were conducted on 30 respondents of pharmacy vocational staff in Semarang. The questionnaire also included informed consent to ensure the confidentiality of respondents' data and to ensure that the answers given were in line with their experiences.

The questionnaire began with questions to determine the characteristics of the respondents. Based on data from the Semarang City Health Office in 2022, there are 37 health centers in the city, making the sample representative of the population that fit the inclusion criteria.

The characteristics of the respondents are listed in Table 1 as they filled in their characteristics. From the table, it can be seen that there is a significant age gap, with the majority of pharmacy vocational staff in Semarang aged 20-24 years old, reaching 65.08%. This is due to the high number of vocational pharmacy formations in 2021-2023, where many of them have recently graduated from the Diploma III pharmacy program and are familiar with the use of technology. Respondents aged 25-29 years were 15 people or 23.81%, a productive age who are also not resistant to technological advances, and therefore still willing to fill out surveys distributed via Google Form. The next age range is 30-34 years with a percentage of 6.35%, and the age range of 40-44 years is 4.76%. Fewer respondents over 30 years old filled out questionnaires related to satisfaction with the use of SI-OBAL.

Table 1. Characteristics of Respondents

Character	Total	Percent (%)
Age (years)		
20-24	41	65.08

25-29	15	23.81
30-34	4	6.35
40-44	3	4.76
Total	63	100
Sex		
Male	12	19.05
Female	51	80.95
Total	63	100

Source: Processed Data by Researchers

The health centers where respondents work represent 37 health centers in Semarang City. Based on gender, pharmacy vocational respondents were dominated by women, with 51 people or 80.95%. Meanwhile, there were only 12 men or 19.05% of the total 63 respondents. This finding is consistent with previous studies that also used pharmacy vocational staff respondents, where the number of women was higher. For example, another study that examined the gender of pharmacists in Semarang City showed that the majority of pharmaceutical workers in Indonesia are female, reaching 91.20%. This is also in line with research showing that the characteristics of respondents are dominated by women (73.89%), as seen in the data of PD IAI South Kalimantan members, where 75.13% of members are women, according to SIAp account data (Rizki and Surya Nautika Lingga, 2022).

The satisfaction of SI-OBAL users was measured using DeLone and McLean's (2003) model of the most recommended satisfaction measurement parameters, in relation to the successful implementation of the health center system and the support of the pharmacy vocational organization, the Indonesian Pharmacy Association (PAFI) PC Semarang City. The model assesses the effectiveness of this system using six measurement parameters consisting of:

1. System Quality
2. Information Quality
3. Use
4. User Satisfaction
5. Individual Impact
6. Organization Impact

In the question regarding the feeling of satisfaction since SI-OBAL contains information and efficacy on natural plant ingredients are as follows:

Table 2. SI-OBAL User Satisfaction

DeLone and McLean Parameters	Quite Satisfied		Satisfied		Very Satisfied		Amount
	∑	%	∑	%	∑	%	
System Quality							
1. SI-OBAL interface design	7	11.11	27	42.86	29	46.03	100.00
2. Easy access	9	14.29	22	34.92	32	50.79	100.00
Information Quality							
1. Customized content, such as information and benefits of natural medicinal plants	7	11.11	18	28.57	38	60.32	100.00
2. Dosage in accordance with scientific literature and regulations	6	9.52	24	38.10	33	52.38	100.00
Use							
1. Pharmacy vocational staff can use SI-OBAL as a source of information when educating the	10	15.87	22	34.92	31	49.21	100.00

community on traditional medicine. 2. Simple and user-friendly menu/feature interface that allows the public to access it themselves.	7	11.11	26	41.27	30	47.62	100.00
User Satisfaction							
1. There is a feature that allows users to provide feedback for system development.	5	7.94	25	39.68	33	52.38	100.00
2. Accurate according to needs such as access to multiple scientific literature in one system.	6	9.52	20	31.75	37	58.73	100.00
Individual Impact							
1. Service to patients becomes faster during self-care education using traditional medicine.	6	9.52	21	33.33	36	57.14	100.00
2. Avoid misinformation and gain patient trust	4	6.35	31	49.21	28	44.44	100.00
Organization Impact							
Health centers are the first destination when people seek natural medicine education with improved natural medicine services.	6	9.5	18	28.57	39	61.90	100.00

Source: Processed Data by Researchers

The satisfaction questionnaire uses a Likert scale, with respondents choosing one of five answer options: (1) Very Dissatisfied (STP), (2) Dissatisfied (TP), (3) Moderately Satisfied (CP), (4) Satisfied (P), and (5) Very Satisfied (SP). In Table 2, it can be seen that system quality related to the interface design of SI-OBAL received very satisfactory results from 29 respondents, or 46.03%. Ease of access anywhere also received very satisfactory results from 32 respondents, with a percentage of 50.79%. This is a positive result for researchers, as SI-OBAL's web design was designed by pharmacy students in collaboration with programmer practitioners. SI-OBAL was initially designed through interviews with representatives of pharmaceutical organizations and professions as well as literature research. The system was chosen to be web-based for easy access, so as to satisfy the users (Suwarni, Modestus, Aulia, 2024).

The quality of information related to content according to needs in the form of information and efficacy of natural medicinal plants has very satisfied results with the number of respondents as many as 38 with a percentage of 60.32%, and for Doses in accordance with scientific literature and regulations have very satisfied results with the number of 33 respondents with a percentage of 52.38%.

Information quality is the realm of competence of pharmacy students according to the needs in the form of information and efficacy of natural medicinal plants complete with regional names, rules of use and processing methods sourced from the literature of the Indonesian Native Medicine Formulary (Kemenkes, 2016) and the Indonesian Traditional Herb Formulary (Menkes, 2017).

In use, pharmacy vocational staff can use SI-OBAL as a source of information when providing education regarding traditional medicine to the community. As a result, 31 respondents were very satisfied, with a percentage value of 49.21%. The simple and user-friendly menu and features also allow the community to access it independently, with 30 respondents giving a very satisfied score of 47.62%. The users of this system are practitioners who have a role regulated in legislation, especially in public health service efforts. One of their duties is to provide education on natural medicines, which are part of programs at health centers and the environment, such as TOGA (Family Medicinal Plants), which can be utilized by accessing the SI-OBAL.

Previous research has also shown that the SIJAHE (Jamu and Herbal Information System) application provides additional information that supports the ability of pharmaceutical workers in the use of herbal medicines in the community. In this case, pharmacists as educators act as a source of information on traditional medicine, with the assistance of tools such as SIJAHE (Suwarni, Ayuningtyas, *et al.*, 2023).

Furthermore, in the user satisfaction section, there is a feature that provides an opportunity for users to provide input for system development. This feature received very satisfying results from 33 respondents, with a percentage of 52.38%. In addition, the feature that allows users to access multiple literatures in one system also received very satisfying results from 37 respondents, with a percentage of 58.73%. This user satisfaction, based on the DeLone and McLean method, indicates that more than 50% of users are very satisfied with SI-OBAL.

The individual impact on patient service showed an increase in the prompt service when self-care education used traditional medicine, with very satisfactory results from 36 respondents, or 57.14%. In addition, the provision of more accurate information and increased patient confidence in the service also obtained satisfactory results from 31 respondents, with a percentage of 49.21%. This individual impact shows that when pharmaceutical workers are familiar with natural medicines, they can respond to patient queries more quickly, as access to the system is more convenient and responsive. This makes patients feel satisfied with the excellent service provided by pharmacy vocational staff at the health center.

The effectiveness test for SIJAHE also shows that the system has a high acceptability impact. The next implementation is how this application can accommodate more current information about all potential traditional medicinal plants in Indonesia (Suwarni, Ayuningtyas, *et al.*, 2023).

The impact on organizations, especially health centres, is significant as they are the preferred destination for people who need education on natural medicines. The improvement of natural medicine services showed very satisfactory results, with 39 respondents giving a percentage score of 61.90%. The optimization in this

phase was due to the support of stakeholders, especially the Semarang City Health Office, which provided room for innovation for pharmacy vocational staff. This made self-care for traditional medicine more attractive to the community, increasing their trust in the health center. The positive impact was also felt by the PAFI organization, with an increase in the quality and service quality of its members, especially those working at health centers.

Table 3. Average Satisfaction

DeLone and McLean Satisfaction Parameters	Satisfied (%)	Very Satisfied (%)
System Quality	38.89	48.41
Information Quality	33.33	56.35
Use	38.1	48.41
User Satisfaction	35.71	55.56
Individual Impact	41.27	50.79
Organization Impact	28.57	61.9
Average of satisfied and very satisfied	35.98	53.57
Satisfaction	89.55	

Source: Processed Data by Researchers

Table 3 shows that following the socialization in the Community Service Activity, it was found that 89.55% of respondents were satisfied and very satisfied with SI-OBAL. Optimization of health services has occurred with the increasing assistance of pharmacy vocational staff with the help of SI-OBAL. Optimization of pharmaceutical services by utilizing natural medicines is the target of Semarang City Health Office and PAFI PC Semarang City to further expand the use of SI-OBAL for other health service facilities.

DISCUSSION

The optimization carried out according to interviews with the Health Office and PAFI Organization after presenting the Information System user satisfaction data is to provide additional socialization for the use of existing information systems, which are the result of research from academics or intellectuals. In addition, the information system should be developed to be more user-friendly, updated with the latest scientific data and regulations, thus becoming a reliable and responsive information system. The PAFI organization also provides opportunities for socialization to pharmacy vocational staff apart from health centers, by expanding outreach to other health care facilities or working with community activist cadres such as Family Welfare Movement (PKK), Women's Association (Dharma Wanita Kota), youth activist groups, and the elderly to utilize herbal medicinal plants as an alternative treatment.

CONCLUSION

Optimization of health efforts in service to the community has increased along with the utilization of the Natural Medicinal Information System (SI-OBAL) in Traditional Medicine Services at the Health Center in Semarang. This is evident from the aspect of satisfaction measured, the results of which are 89.55% of pharmacy vocational staff are satisfied and very satisfied with having accessed the SI-

OBAL and are helped in carrying out pharmaceutical services, especially independent care with traditional medicine.

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