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UNIVERSITAS MA CHUNG

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Contents

ARTICLES

Aim and Scope

The Journal of Community Practice and Social Welfare (JaCiPS) is approaching human welfare through complex society and community. Apply the unlimited knowledge and interdisciplinary, including:

1. Social sciences for community services
2. Engineering for community services and human welfare
3. Educational technology for community services
4. Health and pharmacy for community services
5. Art sciences for community services
6. Theory and model developments for community services

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Providing Health Education as an Effort to Improve Knowledge and Prevention of COVID-19 for Persons with Disabilities, PPDMS Social Institutions, Nglipar, Gunungkidul

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Abstract. People with disabilities are vulnerable to being infected with the COVID-19 virus. The COVID-19 pandemic has had an impact on human life, including the health of people with disabilities. The government makes various policies and programs to prevent the spread of COVID-19, but their implementation is still challenging for people with disabilities. This community service program was carried out in collaboration with Mitra Sejahtera Disability Empowerment Centre (PPDMS), an organization empowering people with disabilities in Gunungkidul Regency. Empowerment of people with disabilities was carried out using 'community control' principle in which the community has the control in making decisions regarding the problems they face so that they can adopt a 'new normal' lifestyle because of their knowledge. The principle of 'community control' was applied by providing education about COVID-19 situation in Indonesia, the symptoms and signs of COVID-19 infection, wash hands, proper cough etiquette, how to use masks, food and lifestyle that can prevent COVID-19 transmission, as well as about the benefits of COVID-19 vaccination. Education was given with a presentation followed by discussion. Evaluation was carried out quantitatively and qualitatively. Quantitative evaluation using pre-test and post-test showed an increase in knowledge. Qualitative evaluation using FGD indicated changes in attitudes and behaviour that support the adoption of 'new normal' lifestyle to prevent transmission of COVID-19. People with disabilities who have received education disseminate the information obtained to other people with disabilities, resulted in multiplication effect of this empowerment program for people with disabilities.

Keywords: community service, disabilities, COVID-19, health education

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INTRODUCTION

The COVID-19 pandemic that has hit the entire world since 2019 until now has had far-reaching impacts and consequences for the world, countries, and has changed many aspects of human life. One of the impacts as a consequence of the Covid-19 pandemic is the field (Turk et al., 2020). According to the Indonesian Ministry of Social Affairs, persons with disabilities are a group of people who directly or indirectly have a high vulnerability to the COVID-19 virus (Badan Pusat Statistika, 2015). The Central Statistics Agency has 8.56% of the Indonesian population with disabilities (Badan Pusat Statistika, 2015). Gunungkidul Regency has the second-highest population of people with disabilities after Sleman in the Special Region of Yogyakarta. People with disabilities in DIY in 2020 found a total of 8,333 people and 1,757 of them are residents of Gunungkidul (Biro Tata Pemerintahan Setda DIY, 2021).

Law No. 8 of 2016 define and arrange persons with disabilities as "Persons with disabilities are any people who experience physical, intellectual, mental, and or sensory limitations in the long term who is interacting with the environment can experience obstacles. In addition, difficulties to participate fully and effectively with other citizens based on equal rights" (Indonesian President and Parliament, 2016). In order to prevent Covid-19 in Indonesia, the government has made various policies and programs to prevent the spread of Covid-19. The Ministry of Social Affairs has carried out socialization and education both for persons with disabilities and for Assistants for Persons with Disabilities, but it is still challenging to implement it for persons with disabilities. There is considerable concern regarding the safety and effectiveness of vaccines and distrust of vaccines (Humas Dit. Penyandang Disabilitas, 2021).

PROBLEMS

Pusat Pemberdayaan Disabilitas Mitra Sejahtera (PPDMS) is a community empowerment institution whose office is located in Nglipar Village, Gunungkidul. The main activity of PPDMS is in the social sector to empower its members with disabilities and families of people with disabilities to be more independent. PPDMS consists of 19 branch organizations spread across 14 sub-districts, namely: Ponjong, Semin, Ngawen, Nglipar, Semanu, Karangmojo, Panggang, Wonosari, Patuk, Gedangsari, Playen, Tanjungsari, Paliyan, Saptosari. The total number of PPDMS members is 435 people.

ISSN: 2774-6011 print
2774-6348 online

Assessment of PPDMS needs is carried out through online meetings and field visits. Based on the online and offline discussions, it is known that persons with disabilities want to know about COVID-19: causes, prevention, disease process, and vaccinations, even though they have not received education about COVID-19. From the needs assessment, it is agreed to organize COVID-19 education for PPDMS members with disabilities.

METHOD OF IMPLEMENTATION

This community service uses one of the principles of community empowerment, namely that the community is in control (Audit Scotland, 2019). The community will be more empowered if they have control to make decisions and manage the assets they have. This condition can be achieved in various ways including increasing the capacity of the community, especially marginalized groups such as persons with disabilities. Capacity building is carried out through training and mentoring so that the community has sufficient knowledge to make decisions regarding the problems they face. Servants provide training and assistance to administrators from 19 PPDMS member organizations.

The capacity building of PPDMS members with disabilities is carried out in several stages, namely:

1. Preparation.
    a) The first preparatory stage, starting with a discussion among team members regarding the goals, objectives, and methods and narrowing the topic of community service on January 11, 2021. After reaching an agreement, a meeting with the chairman of the PPDMS institution was held on January 13, 2021, to get an overview of PPDMS activities and profiles.
    b) The second preparation stage, carried out with a field visit on February 7, 2021, to meet with representatives of PPDMS members and discuss to dig deeper into the wants and needs of PPDMS.
    c) The third preparatory stage, carried out on March 15, 2021, is to determine the schedule, distribute tasks, and prepare transportation, materials, and files related to counselling.
2. Implementation

    The implementation of this service program began with socialization and continued with counselling about COVID-19.

3. Evaluation

Evaluation and assessment are carried out in two methods, namely quantitative and qualitative.

a) Quantitative method, that is, participants' understanding is measured by giving a test before and after the delivery of health education materials. The answer to the question is to choose a true or false choice totalling 15 numbers.
b) Qualitative method, namely, Focus Group Discussion (FGD) conducted by inviting PPDMS members who were present at the previous counselling.

RESULTS AND DISCUSSION

This service activity was carried out in April-June 2021, starting with socialization on April 10, 2021 (Figure 1). At the meeting, the volunteers had the opportunity to meet with the management of the 19 PPDMS member organizations to learn about the activities of each organization. Before the pandemic, these 19 PPDMS member organizations were always acting according to schedule, but since the pandemic, they are no longer able to carry out activities together in routine meetings. Communication between members is established through the WhatsApp group. Then the volunteers explained the purpose of the program, namely increasing knowledge about COVID-19 so that people with disabilities can make their own decisions regarding the 'new normal' lifestyle to prevent the transmission of COVID-19 disease. There are many questions about COVID-19 that have been asked by PPDMS members and the volunteers try to answer some questions that can be answered briefly. Several questions were not answered at the first meeting because the material on COVID-19 was expected to be given at the agreed counselling session, which was held on May 1, 2021.

ISSN: 2774-6011 print
2774-6348 online

(a) (b)

Figure 1. (a) Socialization Workshop; (b) Workshop

Counselling about COVID-19 was given using a PowerPoint presentation method and continued with a discussion (Figure 2). There were 14 who participated in this outreach. COVID-19 counselling materials include the development of COVID-19 in Indonesia, symptoms, and signs of COVID-19 infection, how to prevent and wash hands, correct cough etiquette, how to use masks, food, and lifestyle that can prevent the transmission of COVID-19, and immunity and the benefits of Covid-19 vaccination. The material and discussion were conducted for 3 hours.

Before and after receiving the counselling material, participants were given 15 questions, as shown in Table 1. Based on the results of the first stage of the evaluation, it was seen that there was an increase in the average number of correct answers answered by participants; from an average of 66% to an increase of 66%. to 88%. In conclusion, there was an increase in knowledge of the counselling participants with the pre-test-post-test evaluation method.

Table 1. Comparison of the correct answers' percentage to the pre-test and post-test

No.	Questions	Correct Answer Percentage	
		Pre-test	**Post-test**
1	The cause of COVID-19 is a type of bacteria	20%	86.70%
2	Covid-19 only affects adults	80%	100%
3	Good handwashing should be 10 seconds	53.30%	80%

No.	Questions	Correct Answer Percentage	
		Pre-test	**Post-test**
4	Hand sanitizer with 60% alcohol can kill germs	66.70%	93.30%
5	1 layer cloth mask is enough to prevent the transmission of COVID-19	53.30%	93.30%
6	Sunshine doesn't kill Covid-19	6.70%	33.30%
7	Cough is not necessarily a sign of Covid-19	100%	100%
8	Loss of smell is suspected of Covid-19	93.30%	93.30%
9	A throat swab is one of the Covid-19 tests	73.30%	93.30%
10	The elderly and disabled can be infected	86.70%	100%
11	The duration of self-isolation is > 1 week	66.70%	93.30%
12	Vaccine injected 2x	86.70%	93.30%
13	Shaking hands can spread the Coronavirus	73.30%	80%
14	Sneezing etiquette: cover with elbow/tissue	80%	93.30%
15	Vaccine Content: dead/attenuated Covid-19 virus	53.30%	93.30%
	Average	**66%**	**88%**

The second stage of the evaluation was carried out with a focus group discussion (FGD) on June 13, 2021. FGD is a data collection using qualitative methods by involving a group of people who meet the research/assessment objectives and discuss a predetermined topic. This FGD was facilitated by a professional moderator. This method aims to explore attitudes and perceptions, knowledge, and experience (van Eeuwijk et al., 2017). Through FGD participants were given several selected questions regarding the attitudes and behaviour of participants and participants' experiences after receiving counselling last month. This FGD invited participants who participated in the previous counselling. There were 5 participants who participated in this FGD. The selected questions are a combination of several questions asked by participants during the previous counselling. This is intended to assess whether there are changes in attitudes and behaviour of PPDMS members related to COVID-19.

In the FGD, the volunteers compare the answers of the PPDMS group members using pre-existing minutes. In this second evaluation stage, PPDMS members who initially did not know properly how to wash their hands, the percentage of alcohol content in hand sanitizer,

ISSN: 2774-6011 print
2774-6348 online

and how to prevent COVID-19, were able to answer correctly in accordance with the COVID-19 Transmission Prevention Guidelines for the community. Washing hands 20 seconds, *5M*, choosing a hand sanitizer with 70% alcohol content, masks, and social distancing are measures that can be taken to prevent COVID-19 transmission (Kementerian Kesehatan Republik Indonesia & GERMAS, 2020). After the counselling was carried out, currently PPDMS members are more likely to sunbathe, maintain good ventilation and airflow and eat vegetables and fruit to increase immunity. Vaccination was something that PPDMS members were afraid of during their first field visit, now their insights are broadened and according to PPDMS members, they will patiently wait for their turn to be vaccinated according to the government schedule and receive vaccinations as an effort to fight the COVID-19 pandemic.

Figure 2. Group Photo after FGD, volunteers with some members of PPDMS

From the second stage of the evaluation, the counselling materials were provided and sent via the PPDMS WhatsApp group, they were downloaded by members of the PPDMS group and became a topic of discussion and reference for sources when there were PPDMS members who asked questions related to COVID-19, including ordinary members, who are not management members of the 19 PPDMS organizations. From this evaluation, it can be concluded that there has been a change in the attitudes and behaviour of persons with disabilities after they have received a correct understanding of COVID-19. This shows that when the community has control over decisions related to the problems at hand, the community can progress and develop. The participation of persons with disabilities in the realization of a healthy society is not only limited to oneself, but also manifested in initiatives

to share knowledge with other persons with disabilities that can strengthen social solidarity in society, cooperation, and a sense of empathy (Margarini, 2021).

CONCLUSION

Community service activities using the principle of empowering the community to have control in making decisions related to the problems at hand have proven to be effective. Education about COVID-19 provided according to the needs of PPDMS members, Nglipar District, Gunungkidul Regency was enthusiastically welcomed by PPDMS members and had a positive impact on changing attitudes and behaviour of persons with disabilities related to COVID-19 prevention. Persons with disabilities further disseminate knowledge about COVID-19 to other persons with disabilities and produce multiplication effects in community empowerment.

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ISSN: 2774-6011 print
2774-6348 online

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ISSN: 2774-6011 print
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Original Title:
Edukasi Kesehatan Sebagai Upaya Peningkatan Pengetahuan Dan Pencegahan COVID-19 Bagi Penyandang Disabilitas, Lembaga Sosial PPDMS, Nglipar, Gunungkidul

Abstrak. Penyandang disabilitas merupakan kelompok masyarakat yang memiliki kerentanan tinggi terinfeksi virus COVID-19. Pandemi COVID-19 yang melanda seluruh dunia sejak tahun 2019 hingga saat ini membawa dampak dalam kehidupan manusia, termasuk dampak bagi kesehatan penyandang disabilitas. Pemerintah membuat berbagai kebijakan dan program dalam upaya pencegahan penyebaran Covid-19, namun masih dirasakan sulit implementasinya bagi penyandang disabilitas. Program pengabdian kepada masyarakat ini dilakukan bermitra dengan Pusat Pemberdayaan Disabilitas Mitra Sejahtera (PPDMS), sebuah organisasi yang memberdayakan penyandang disabilitas di Kabupaten Gunungkidul. Pemberdayaan penyandang disabilitas dilakukan dengan menggunakan prinsip '*community control*' atau 'masyarakat memegang kendali' dalam pengambilan keputusan terkait masalah yang dihadapi. Anggota PPDMS mempunyai keingintahuan tentang COVID-19 agar mereka dapat mengadopsi gaya hidup '*new normal*' karena pemahaman tentang penyakit ini. Prinsip 'masyarakat memegang kendali' diterapkan dengan memberikan edukasi tentang perkembangan COVID-19 di Indonesia, gejala dan tanda infeksi COVID-19, cara pencegahan dan cara mencuci tangan, etika batuk yang benar, cara menggunakan masker, makanan dan gaya hidup yang dapat mencegah penularan COVID-19, serta tentang kekebalan dan manfaat vaksinasi COVID-19. Edukasi diberikan dengan presentasi kemudian dilanjutkan dengan diskusi dan tanya jawab. Evaluasi program dilakukan secara kuantitatif dan kualitatif. Melalui evaluasi kuantitatif dengan *pretest* dan *post-test* menunjukkan adanya peningkatan pengetahuan, sedangkan evaluasi kualitatif dengan *focus group discussion* mengindikasikan terjadinya perubahan sikap dan perilaku yang mendukung adopsi gaya hidup baru untuk mencegah penularan COVID-19. Penyandang disabilitas yang sudah menerima edukasi bahkan menyebarkan pengetahuan yang diperoleh kepada penyandang disabilitas lain, sehingga terjadi efek multiplikasi dari program pemberdayaan penyandang disabilitas ini.

Kata kunci: Pengabdian masyarakat, disabilitas, COVID-19, edukasi kesehatan

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.11-23, 2022
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2774-6348 online

Implementation of a Web-based Digital Repository Information System at the Office of Sumbersekar Village

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Abstract. This research-based community service program is entitled *Implementation of a Web-based Digital Repository Information System at the Office of Sumbersekar Village*. This activity is motivated by the need to conduct collaborative learning programs with the village for the implementation of research results. Activities oriented towards product implementation as a more comprehensive effort for the downstream process of research results in the service carried out by private universities that can be utilized by the community. Down streaming the results of this research is also the basis for managing collaborative learning activities for the Independent Learning (as suggested by the term MBKM) between Ma Chung University and the village. The issue of the village's desire to switch from a manual system to a computerized system is our focus. In the transition process from manual to computerized system, many information systems are needed, one of which is data digitization. Digitizing the repository allows centralized data so that the village staffs will find them easier to search when needed. Centralized storage media can support verification, namely the process of checking, confirming, and ensuring archives, ensuring the legality and integrity of related files and their relationship to the village. The repository information system implemented at the village office is expected to minimize archiving errors, facilitate data retrieval, avoid lost or damaged documents, and can anticipate data theft. This repository information system also facilitates the process of monitoring, controlling, as well as backing up data. Therefore, this community service has successfully implemented a repository information system for internal village documents.

Keywords: implementation, web-based digital repository information system, community service

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INTRODUCTION

A study on the repository was conducted at a university. It is concluded that scholars in universities in Kenya are aware of the necessity for preservation of scholarly content and they use various strategies at personal level to enhance long-term access to this content. However, they prefer preserving the content on personal devices rather than public devices such as digital servers and repositories. Distrust and lack of awareness seem to be the key factors impeding use of institutional digital repositories for preservation of scholarly content. In line with best practices of digital preservation, the study recommends that institutions of higher learning in Kenya need to broaden their repository activities to include preservation strategy, tools, and techniques in their daily management activities. This will involve integrating careful observance of accepted preservation practices throughout the lifecycle of digital information especially that which is created within the universities (Moseti, 2016).

Based on this research, we see how important the repository is to support the administrative management of an institution. The digital repository is a source of information obtained from the digital archive of every activity carried out by an institution (Vrana, 2017). The village office is no exception. Where a village office should be continued and improve its services. Therefore, this repository will support the village service information system well. We know that this village service information system is an application that is used to assist the village government in providing optimal services to the community through the availability of integrated data with an information system that is created and developed specifically in accordance with services in the village government (Infodesaku.co.id, 2018).

Therefore, the research-based community service program and prototype this time took the title *Implementation of a web-based Repository Information System at the Sumbersekar Village Office*. This service activity is motivated by the need to conduct collaborative learning programs with village partners for the implementation of research results. The result of the previous research entitled *Rancang Bangun Sistem Informasi Repositori Digital Dokumen Internal Berbasis Web* has been published in (Alfredo & Susilowati, 2021). The results of this research are also a continuation of previous findings regarding E-government Master Plan as stated in a scientific publication entitled *Master Plan of Local E-government for Village Office Information System Referring to Ministerial Regulations on Work Procedures* (Susilowati, 2021).

ISSN: 2774-6011 print
2774-6348 online

This service activity is oriented towards product implementation as a more comprehensive effort for the downstream process of research results to the community carried out by private universities that can also be utilized by the community. Down streaming the results of this research is also the basis for managing collaborative learning activities for the Learning Independent Campus Program on an ongoing basis between Ma Chung University and Sumbersekar Village. The issue of Sumbersekar Village's desire to switch from a manual system to a computerized system is our focus. With a system that can support Village business processes, it is hoped that village governance can run more optimally. In the process of transition from manual to computerized system, many information systems are needed, one of which is data digitization. Data digitization is a change from manual data (hardcopy) to digital data (softcopy). This is done because Hardcopy Documents can be damaged, lost, or take up space and are more difficult to duplicate. As a result, we need to digitize the repository that allows centralized data to make it easier to search when needed.

Digital repository itself is defined as a source of information obtained from digital archives of existing activities within an institution. Repositories are needed to facilitate access to documents or files both in the upload process and in the download process. Centralized storage media can also support the verification process, namely the process of checking, confirming, and ensuring an archive to ensure the legality and integrity of related files and their relationship to Sumbersekar Village.

The repository information system that was implemented at the Sumbersekar Village office is expected to minimize archiving errors, facilitate data retrieval, avoid lost or damaged documents, and can anticipate data theft. This repository information system also facilitates the process of monitoring, controlling, and backing up data. Therefore, this service activity will implement a repository information system for internal documents of Sumbersekar Village.

PROBLEMS

All the existing important documents at the office of Sumbersekar Village are still stored manually. As a result, the process of archiving, documenting, and surely recalling all those documents become burdensome. The staff have to work harder in finding all the documents when needed, opening all files one by one, or there is always a possibility that the documents are lost and cannot be found anymore. Thus, the most appropriate solution

for those problems is to implement a user-friendly computerized system called a web-based repository information system.

METHOD OF IMPLEMENTATION

In carrying out this community service activity, the team employed several strategies to complete the entire series of activities on time and on target. The following is the implementation method that the team conducted to achieve the goals and objectives of this community service.

1. Coordinating with partners at the beginning of the implementation of this service activity to inform activities and identify human resources as the target of training for the implementation of this repository information system.
2. Developing a schedule with partners specifically with human resources who would take part in the training so as not to interfere with the operational activities of the village office.
3. Preparing a questionnaire according to the criteria for measuring application user satisfaction. The questionnaires were conducted twice, i.e. before and after the training.
4. Preparing the hardware for the application of website server in accordance with the standard server specifications approved by partners.
5. Developing an application operation tutorial module so that it can be a guide during the use of this repository information system. The modules were arranged according to the application features as follows:
    a. Repository Mastering Settings (File Format, Access Rights, Data Source, Publication, File Classification, Village, District, Religion, Occupation, User and Employee Details)
    b. Settings FAQ
    c. User Settings (Staff, Admin, Visitor, Village Head and Content Moderator)
    d. Repository Transaction Input (Upload, Verification, Preview, Download, Delete)
    e. View Reports
    f. Repository Newsletter Update
6. Training on the use of applications with partners were held 3 times within 5 days consecutively with the following agenda:

ISSN: 2774-6011 print
2774-6348 online

a. Day One: Training for Users with Admin privileges.
b. Day Two: Training for Users with Advanced Admin privileges.
c. Day Three: Training for Users with access rights as Village Heads, Staff and Content Moderators.
d. Day Four: Training for Users with Advanced Staff and Content Moderator access rights.
e. Day Five: Training for Users with Access rights as Visitor, Staff and Content Moderator.

7. Assistance in using the application for 1 week starting from input of master data, transaction processing repository to reporting and simulating the process of searching the required documents.
8. Making videos of preparation activities, training to mentoring for editing for publication material in the mass media.
9. Publication on mass media through Ma Chung University website, study program social media and East Java regional mass media.
10. Managing survey results to draw conclusions about the success rate of service activities. The results of the questionnaire survey that had been distributed before the training started shows that only 15% knew about repositories or archiving.

RESULTS AND DISCUSSION

This part serves as the reports of the results and discussion. What matters are: how the trainings were carried out, the outputs and outcomes as benefits of the community service conducted by the team, the positive economic and social impacts for the target partners, its contribution to other sectors, and an expected follow up.

ISSN: 2774-6011 print
2774-6348 online
Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.11-23, 2022

Figure 1. The application operation tutorial module

The application operation tutorial module used as guidelines for the trainings is shown in Fig. 1. The following is a brief overview of the web-based Repository Information System Application. Repository application is online at: http://prodisi-mengabdi.machung.ac.id/index.php. The Homepage is the first page that will appear after the user logs in to this Repository Application as shown in Fig. 2.

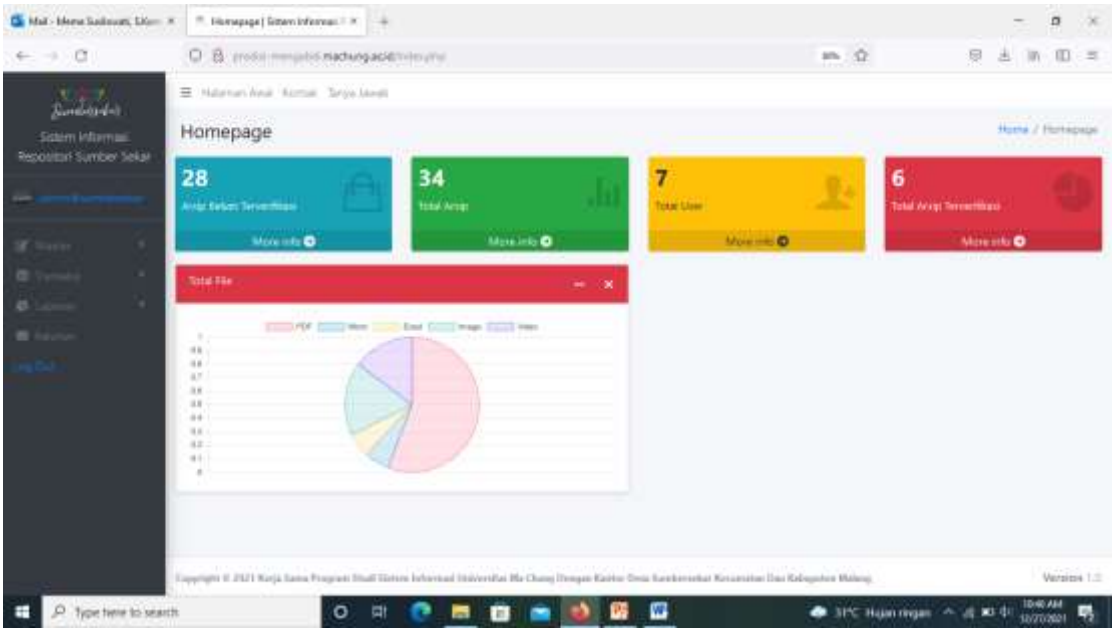

Figure 2. An overview of the web-based Repository Information System Application.

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.11-23, 2022
ISSN: 2774-6011 print
2774-6348 online

This IS Repository Application has a Master menu. There are 9 submenus with one display of the Master Document Classification page by Function as shown in Fig. 3.

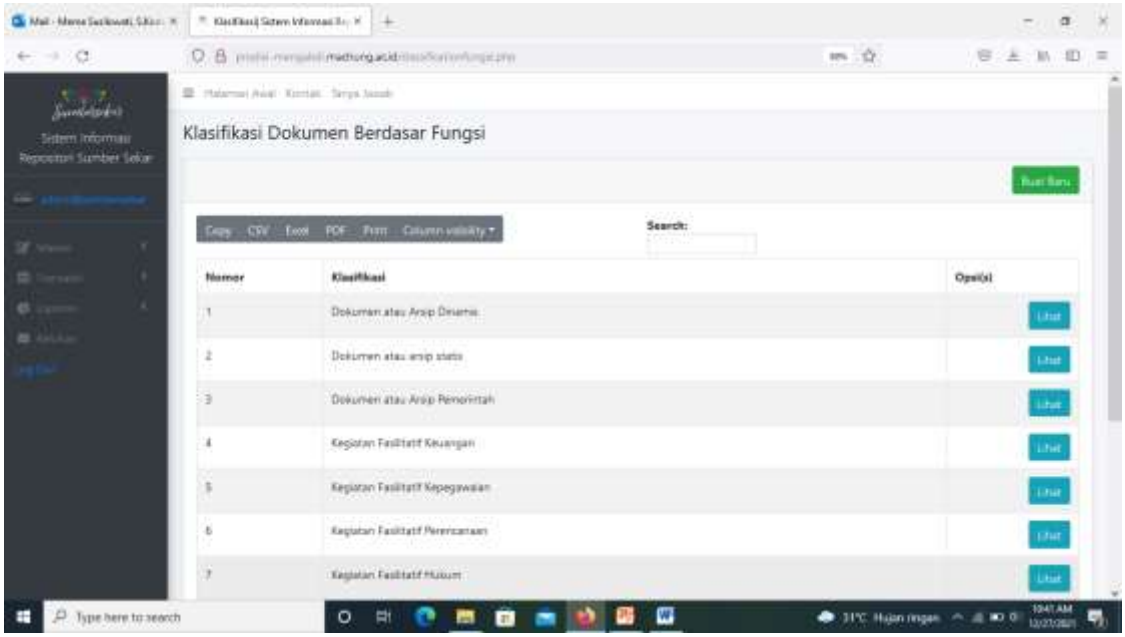

Figure 3. Master Document Classification page by Function.

In the Master menu there is also a submenu related to Master Classification of documents based on their usefulness. Display of the Master Classification Based on Usability page is as Fig. 4.

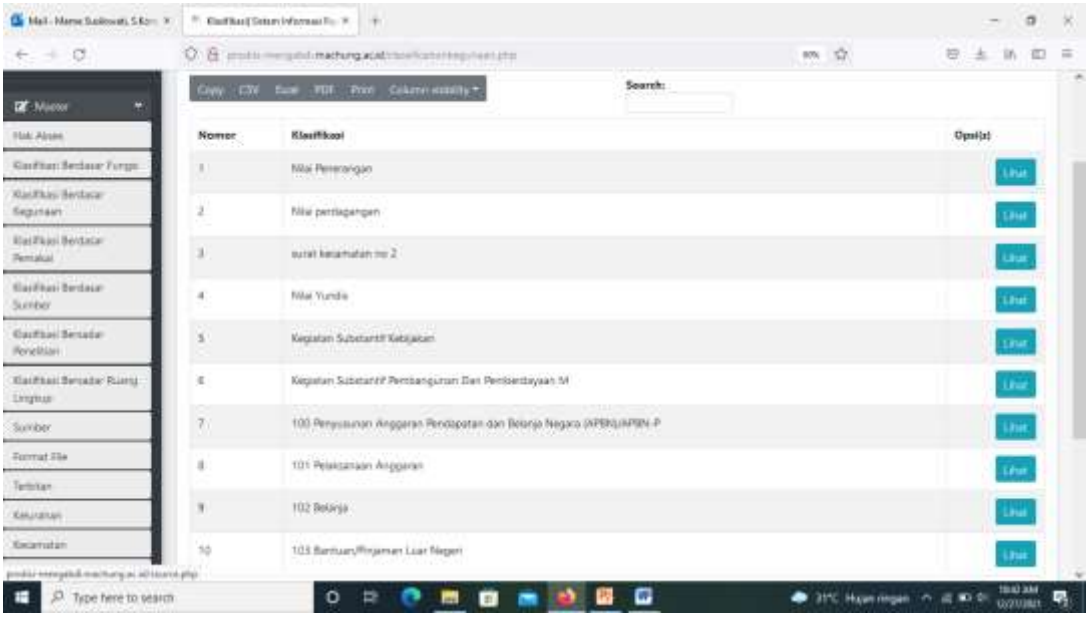

Figure 4. Display of the Master Classification Based on Usability page.

ISSN: 2774-6011 print
2774-6348 online

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.11-23, 2022

This Repository Information System also has a Transaction menu in which there are 2 submenu options, to upload documents of type Pdf, Word, Excel, and Photos and to upload video type documents. The transaction page display for uploading archives and videos is shown in Fig. 5.

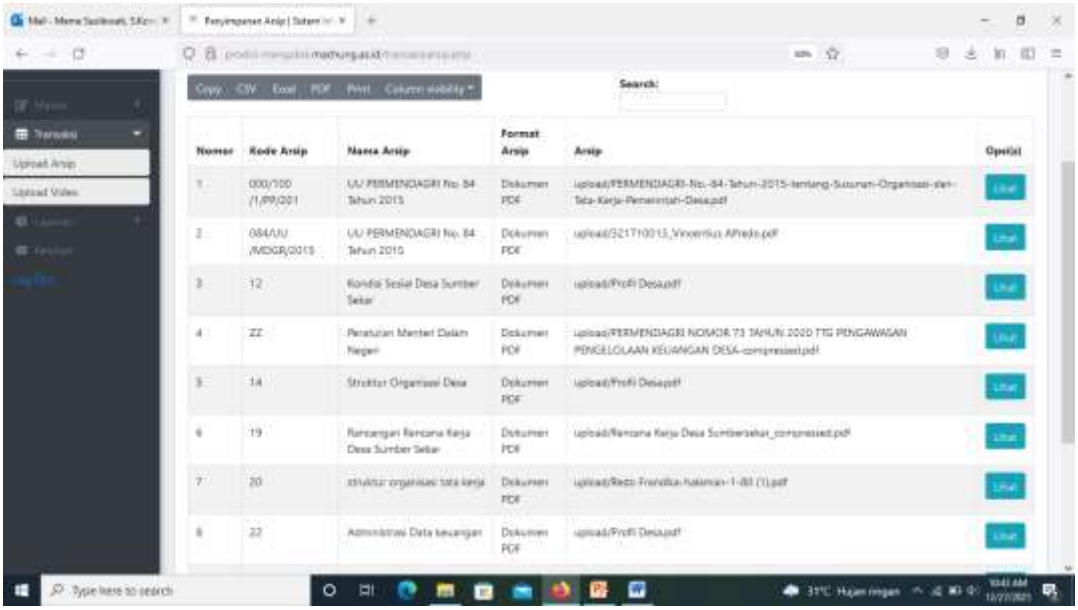

Figure 5. The transaction page display for uploading archives and videos.

In the Transaction menu, uploading videos can be displayed as Fig. 6.

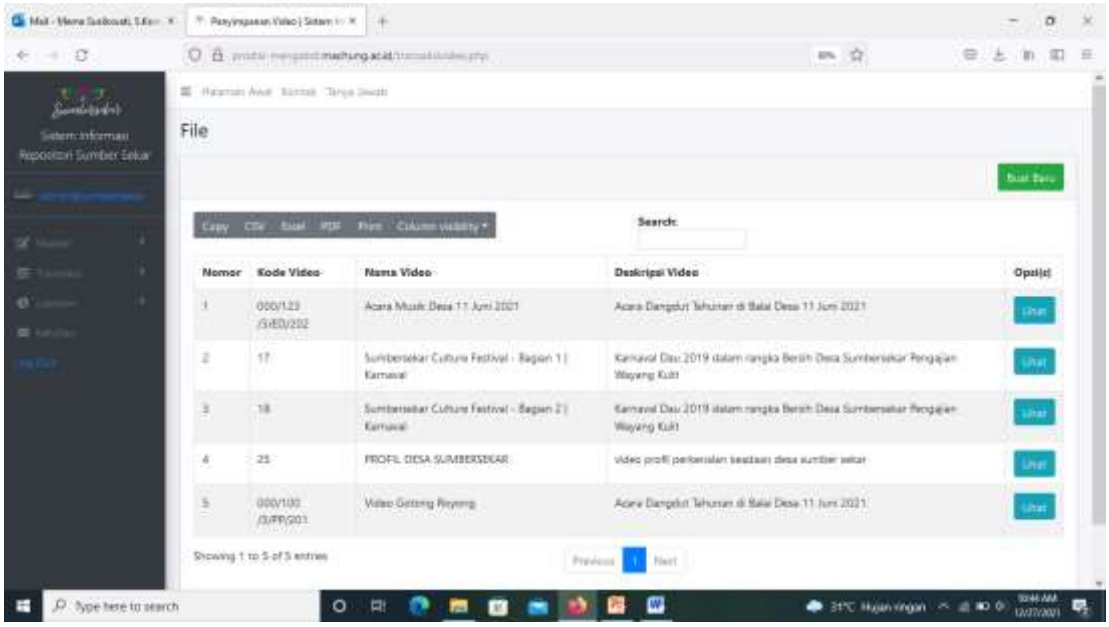

Figure 6. Transaction menu for uploading videos.

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This IS Repository application also has a Report menu. There are 9 Report submenus with one of the Transaction Report page views shown in Fig. 7.

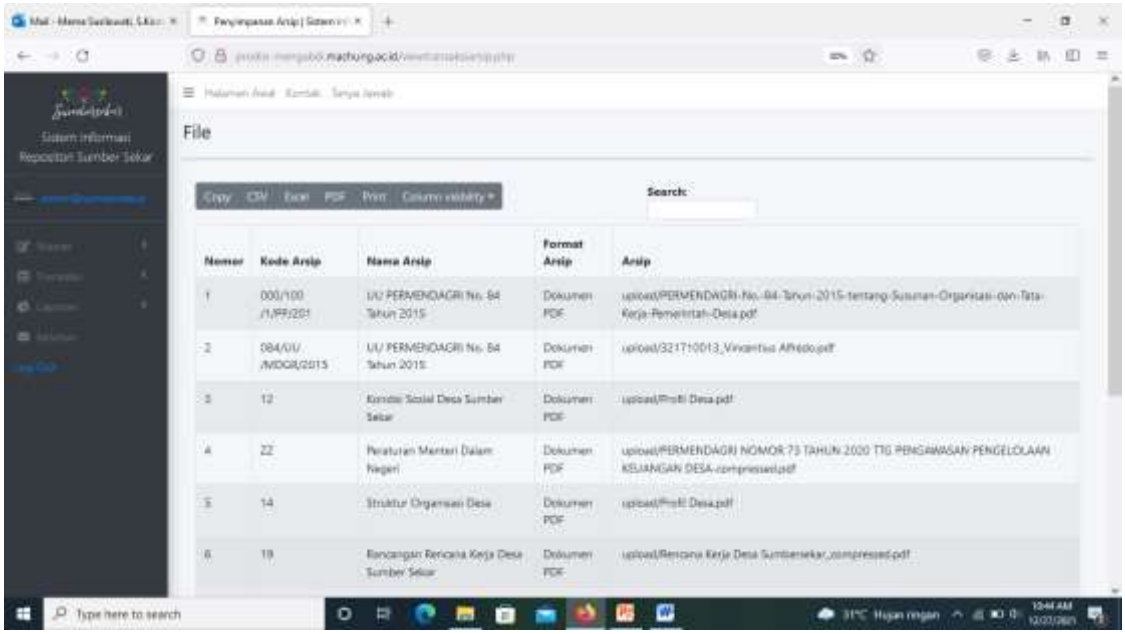

Figure 7. Display of 9 report submenus with one of the transaction report page views.

Figure 8 is the picture taken while conducting the training. The activities were guiding, discussing, and providing solutions for their difficulties.

Figure 8. Guiding the Staff of Sumbersekar Village for the Application of Web-Based Repository Information System.

As always, every service activity must have an output as a measure of the level of success of this activity. The outputs that have been achieved in this activity are:

1. Video Service Activities with a size of 717 MB with MP4 Video format that has been published on the social media pages of the Information Systems Study Program.
   a. Video Testimonials and Teaser of this community service Based on Research Results in Sumbersekar Village (Sistem Informasi, 2021a).
   b. Video on the Implementation of a Web-Based Digital Repository Information System at the Sumbersekar Village Office (Sistem Informasi, 2021b).
   c. Video Tutorial on Web-Based Digital Repository Information System at Sumbersekar Village Office (Sistem Informasi, 2021c).
2. Articles of mass media are registered at
   a. Kumparan.com: PT Tugu Media Communicationsdo
      i. https://tugumalang.id/sumbersekar-menuju-desa-digital-bersama-universitas-ma-chung/ as shown in Fig. 9.
      ii. https://kumparan.com/tugumalang/universitas-ma-chung-malang-support-desa-sumbersekar-menuju-desa-digital-1xAinuI1vOE
   b. TribunJatim.com: Kompas Gramedia https://jatim.tribunnews.com/2021/12/24/sumbersekar-menuju-desa-digital-bersama-universitas-ma-chung-malang

The implementation of a web-based repository information system at the Sumbersekar Village Office has very good benefits for the parties involved. This service activity has provided benefits to the community, namely: (a). doing community service based on research results that has been published with the title "Design of a Web-Based Internal Document Digital Repository Information System" in (Alfredo and Susilowati, 2021), (b) supporting the achievement of Key Performance Indicator Number 7 from Directorate General of Higher Education, Research and Technology, (c) increasing the number of community services which are expected to increase the involvement of universities in social and economic activities, and (d) obtaining policy recommendations from the study program level to the national level in implementing community service through independent learning in private universities and accelerating the application and utilization of research results and community service in private universities.

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.11-23, 2022
ISSN: 2774-6011 print
2774-6348 online

Figure 9. Mass Media Article of the Community Service Implementation

Additionally, the positive economic and social impacts of carrying out this activity is that Sumbersekar Village has a centralized digital archive. All people can access the archive in accordance with the limitations of their access rights. This certainly has a positive impact because residents can use it for all documentation purposes, for example for submitting proposals for grants for MSME funding, schools, etc. With complete and easily accessible documentation, residents will get and use it faster.

As for its contribution for the other sectors, this community service activity also has outcomes such as: (a) a follow-up that can be done for making Recommendation Documents for improving MBKM in private universities with the initiation of MBKM collaboration between Ma Chung University and Sumbersekar Village, (b) it can also have a Recommendation Document on the implementation of research results that are beneficial to the community in the form of a tutorial module on the operation of the Sumbersekar village digital repository information system application which is useful for adding the IPR for universities and villages.

In carrying out the service activities for implementing a web-based Repository Information System at the Sumbersekar Village Office, there are also several obstacles and follow-ups. The obstacles/obstacles experienced during the implementation of the web-based Repository Information System at the Sumbersekar Village Office are: (a) training

schedule that must be carried out immediately amidst the busy work of village officials towards the end of 2021, (b) video documentation from vendors who are apparently not quick enough to do active initiation, (c) management of the field implementation team, which is mostly students, so special assistance is needed in order to produce the output that meets expectations.

As a follow-up to the implementation of the web-based Repository Information System at the Sumbersekar Village Office, several agendas have been approved by both parties. Assistance will continue to operate the application with interns who will help input archive data as well as monitor each user so that they can operate the application optimally. There is continuous scheduling for student involvement in Village Office operational activities, especially those related to device activities using Information Systems from districts, ministries, and internal Village applications. There is also a need for special IT training for Village officials so that they can present reports well, quickly, and accurately.

CONCLUSION

With the completion of this activity, it can be concluded that this web-based digital repository information system can assist archiving at the Sumbersekar village office. There is also a significant increase in knowledge and skills so that the village officials can improve their capacity and mastery in using IT equipment for daily operational activities. As for the sake of the progress of service and research activities going forward, we suggest several things that can be done at the Sumbersekar Village office, namely, sustainability of servers both independently and continuous optimization of this repository information system as well as integration of this repository information system in relation to the general service section.

ACKNOWLEDGEMENT

This article was prepared as evidence that this research-based community service activity has been completed. In addition, this activity also aims to enable lecturers and students of Information Systems Study Program of Universitas Ma Chung to directly apply the research results and to inspire further innovation in service activities and further research. This service activity would not run well without contributions from various parties. Therefore, we would like to express our deepest gratitude to the Ministry of Education and Culture, Research, Technology and Higher Education for the trust that has been given to us.

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We are also very grateful to Universitas Ma Chung where we take shelter and work. Hopefully this scientific article can be useful and become a good reference for readers. We realize that this article is far from being perfect, therefore, we apologize for any shortcomings. We would surely welcome constructive criticism and suggestions.

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Strengthening of Biomolecular Engineering Competence for Pharmacists in Batu City through Webinars and Workshops on Isolation of Genetic Material, Real-Time PCR, and its Applications in the Clinical Field

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Abstract. The pandemic of COVID-19 has forced pharmacist assistance practitioners to strive to improve their qualifications and competencies, especially in molecular biology. The human resources competencies in this field are still lacking, resulting in some obstacles in the handling of COVID-19 encountering, thus hampering the acceleration of post-pandemic recovery. The Virus that can spread rapidly requires competent health workers to move as quickly as possible to overcome this pandemic condition. Ignorance of these critical technical matters often occurs so that it affects the identification results, which are expected to be more accurate, precise, and reliable. In a workforce to increase the competency capacity of pharmacist assistants in the biomolecular field, especially in the technical competence of genetic material isolation and PCR methods, the Pharmacy Study Program of Ma Chung University held Webinars and Workshops related to DNA isolation and quality testing. The webinar and workshop on the isolation of genetic material were carried out to implement one of the research topics in the Pharmacy Study Program, especially in the field of development of molecular biology. Several studies here have focused on molecular biology approaches. The essential thing in this webinar and workshop is discussing some critical criteria before the actual virus identification. This program collaborates with PAFI (Indonesian Pharmacy Experts Association) of Batu City as a partner. People who took part in this event consisted of 63 persons from the Batu City and Malang City areas. Most of the participants work in health facilities, with 50% of the participants having isolated genetic material and PCR (Polymerase Chain Reaction). Spreading the pre and post-test with the same questions increased the average acknowledgment score from 42.9 to 61.1. This indicates that continuous training in this field needs to be held on an ongoing program so that the competence of pharmacists in the field of molecular biology is getting better.

Keywords: pharmacists assistants, molecular competencies, isolation, DNA, PCR

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INTRODUCTION

Genetic material, in this case, DNA (Deoxyribose Nucleic Acid) or RNA (Ribo Nucleic Acid), is a hot topic of discussion during this pandemic because it is related to identifying the COVID-19 Virus. But unfortunately, the number of experts who have competence in isolating genetic material is still minimal, so the acceleration of handling COVID-19 has not been able to reach an excellent optimal point. Medical personnel who have this competence are still very minimal, so in a short period of time, Indonesia is forced to have medical personnel with competencies that can isolate and identify genetic material.

Several studies conducted in the Bachelor of Pharmacy Study Program at Ma Chung University are more focused on the molecular field, such as Molecular Analysis of Gene Expression Related to The Effects of DLBS3233 Treatment in Differentiation of 3T3-L1 Pre-Adipocyte (Sitepu et al., 2016) and Genetic Identification Lactobacillus in Rice Wash Water Fermentation with PCR (Polymerase Chain Reaction) (Sitepu et al., 2021). This shows that the Bachelor of Pharmacy Study Program at Ma Chung University has the capacity and competence to identify and perform analyses related to genetic material.

This research is also expected to be implemented in the community to accelerate the isolation and identification of genetic material related to the COVID-19 pandemic. For this reason, training is needed to increase the competence of medical personnel, in this case, pharmaceutical personnel, so that the acceleration of handling COVID-19 can be optimized so that the pandemic could end in a short time. This training focuses on isolating and testing the quality of good genetic material to be adequately tested using other methods, especially the real-time PCR method.

PROBLEMS

Experts in molecular biology can be minimal because the number of study programs that promote this competency is minimal. The lack of teaching staff in this field so that human resources can't be optimally empowered towards competence in the molecular area. This competence is needed in solving problems related to disease diagnosis and treatment. The emergence of extraordinary events related to coronavirus infection, for example, really requires experts in the field of molecular biology to overcome and treat virus infections.

Molecular competence, in general, is full of theory and not adequately balanced with practical work in the laboratory. This is also one of the reasons why students' interest in studying the exact field has decreased due to a lack of understanding related to these subjects,

https://doi.org/10.33479/jacips.2022.2.1.24-36

when in fact, Biology subjects prioritize in-depth observations of the surrounding environment.

DNA (Deoxyribonucleic Acid) and RNA (Ribonucleic Acid) are materials for storing genetic information and genetic expression (Douglas et al., 2010). Understanding DNA and RNA is significant because, with this competency, kits can identify a disease, pathogenic bacteria or viruses, or clone using recombinant DNA technology to produce specific products. A correct understanding of genetic material is needed so that pharmacists have the right view of DNA and are willing to work in related fields.

METHOD OF IMPLEMENTATION

The program implementation is conducted using the webinar method, and workshops are run through the Zoom media. Participants who took part in the webinars and workshops were members of the IPEA/PAFI (Indonesian Pharmacist Experts Association) Batu City. The webinar topics discussed are related to the introduction of genetic material, the implementation of real-time PCR technical quality, and the implications of biomolecular techniques in clinical practice. The workshop provided was in the form of a workshop on isolating genetic material (DNA) and determining its quantity and purity. The program for implementing the activities can be seen in Table 1. Before and after the webinar, enrichment questions were given to see how far the material could be understood by the participants of the webinar and workshop.

Table 1. Schedule of Service Activities with IPEA/PAFI Partners Batu City

No.	Activity	Room
	Webinar	
1.	Methods of isolation of genetic material and aspects of its quality.	*Zoom*
2.	*Real-time* PCR and the essential things to consider in its implementation.	*Zoom*
3.	Implementation of molecular biology methods in clinical.	*Zoom*
	Workshop	
1.	DNA isolation using isolation kits,	Community Service Team
2.	DNA quality test using the spectrophotometry-one drop.	Community Service Team

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2774-6348 online

The test contents contained information on how to isolate DNA using an isolation kit and the quality of DNA using spectrophotometry-one drop. Participants took the test through a google form. Before the questions were given to the participants, the pre-test and post-test questions were reviewed by the service lecturer team.

RESULTS AND DISCUSSION

Webinars and workshops are held online using the Zoom application, divided into two parts, namely: webinars and workshops. The webinar is divided into three main topics: Introduction of Genetic Material, Technical Implementation of real-time PCR, and implementation of molecular biology techniques in clinical research. The workshop provided was in the form of Isolation of Genetic Material using Adsorption Techniques and Testing the Quantity and Quality of DNA isolated.

First Session: Methods of isolation of genetic material and aspects of its quality

This session is more directed to the introduction of macromolecules. Genetic materials such as DNA and RNA are included in these macromolecules (Sorber et al., 2017). This session also explained the basic structure of genetic material, three standard methods for isolating genetic material, and determining the concentration and quality of genetic material. Figure 1 shows the running of the online program.

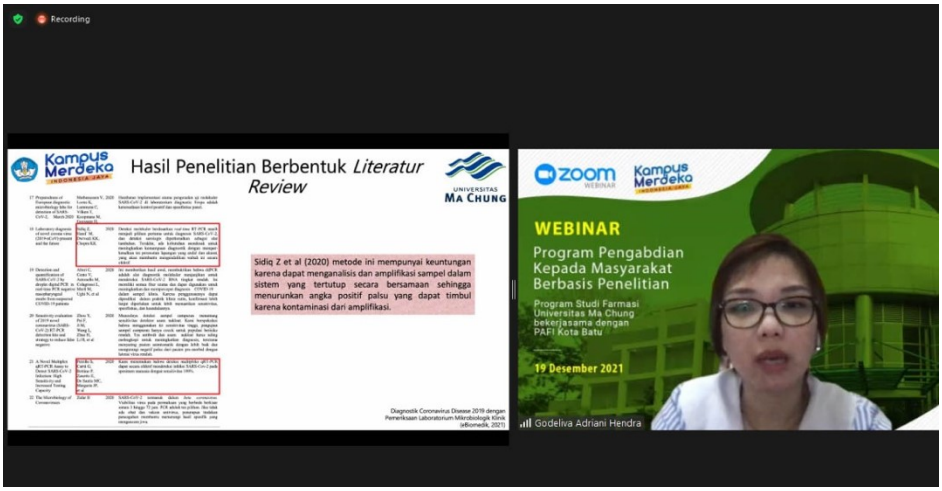

Figure 1. The online program implementation process

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Second Session: Real-time PCR and the important things that should be consider in its implementation

This session described essential aspects to prepare before carrying out the actual identification test using real-time PCR (rtPCR). There are four primary purposes for using rtPCR: diagnostics, gene expression analysis, DNA/RNA quantification, and multigene target analysis (An et al., 2018; Kralik & Ricchi, 2017). Important things that need to be prepared before the test is carried out are:

1. Target amplicons and primary design (Cannon et al., 2019)

   It is essential to know the profile and characteristics of the target gene amplicon. Some basic general shapes to know are:

   - Target gene length
   - The allele variation of the target gene
   - The cell type of the target gene, whether in prokaryotic or eukaryotic cells.

2. DNA/RNA purity

   The purity of DNA/RNA dramatically affects the result of the rt-PCR system used. The presence of impurities can inhibit the amplification process and, the readings carried out by the fluorescent reagent. Therefore, after isolation, it is necessary to test the concentration and purity of DNA/RNA using spectrophotometry or electrophoresis. The service team appointed these criteria to conduct a workshop as part of the preparations before the actual test.

3. Reverse transcription system

   Two reverse transcription systems are carried out: a single-stage reverse transcription system and a two-stage reverse transcription system. The type of reverse transcription is selected according to the reagents and the type of PCR machine that we have (Kang, 2019).

4. Control and normalization

   In the identification process using rtPCR, internal controls need to be included in the identification process. The selection of internal control is essential because it affects the normalization process. This webinar described some commonly used internal controls and how normalization measurements are carried out.

5. Evaluate efficiency, sensitivity, and reproducibility using standard curves

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2774-6348 online

The primers' efficiency, sensitivity, and reproducibility need to be determined so that the validity of the results can be adequately accounted for. This is because the three primary aspects significantly affect the reading of the rtPCR results (Bonab et al., 2015).

Third Session: Application of molecular method techniques in the clinical field

The third session explained the relationship between clinical aspects and molecular biology methods. Some of the clinical elements discussed involve clinical studies conducted using a molecular biology approach. This webinar explained how rt-PCR is used as a standard in identifying COVID-19. This webinar further emphasized the significant difference in results between rtPCR and conventional PCR (Alteri et al., 2020).

Workshop

As shown in Figure 2, the workshop was carried out by involving students as part of the field implementation team to record the results of DNA isolation and identification in the laboratory. Isolation was carried out using an isolation kit with the adsorption method. This adsorption method is evident by using a mini-column as a DNA barrier (Ware et al., 2020).

The concentration and purity of DNA were carried out using nanodrop spectrophotometry. The DNA concentration was measured at wavelength A260, then plotted against the calibration curve obtained from the device. Purity was tested using the calculated ratio A260/A280. A good purity ratio was obtained from 1.8 to 2.0 (Domínguez-Vigil et al., 2019).

Figure 2. Workshops on Isolation of Genetic Material.

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2774-6348 online
Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.24-36, 2022

Activity Evaluation

To measure the success of this community service activity, the author gave two tests: pre-test and post-test. Both trials had the same question, namely measuring competence. The test was in the form of multiple-choice with four available choices made. In the pre-test, it has been added five questions that support the demographic data. Before the test began, the test's purpose was explained in advance. Through participant approval, the service team obtained permission to collect test results. The data obtained is used as a benchmark for implementing the service.

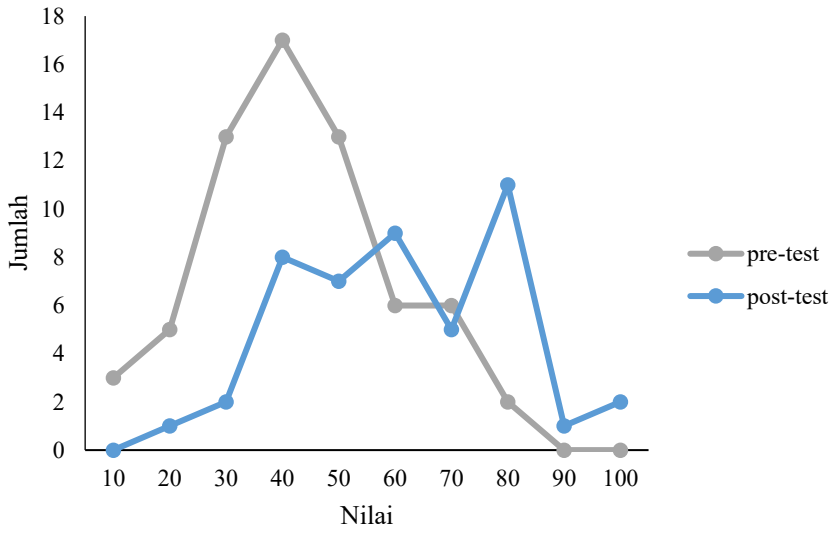

Figure 3. Results of pre-test and post-test of webinar participants

In the pre-test and post-test results shown in Figure 3, there was an accumulation of the number of values between the ranges of 20-60 at the time of the pre-test. The post-test results showed a good chance where the number of participants with a score of 50-80 became more. The average pre-test result was 42.9 and increased to 61.1 at the post-test. As shown in Figure 4, demographic data obtained from participants showed that 70% of the participants work in health departments such as pharmacies and hospitals. Around 51% of participants came from Batu City, and 43% came from Malang City. 48% already understand you related to DNA isolation and PCR, while the rest have never done it. Interestingly, 35% of the participants had practiced DNA isolation and PCR.

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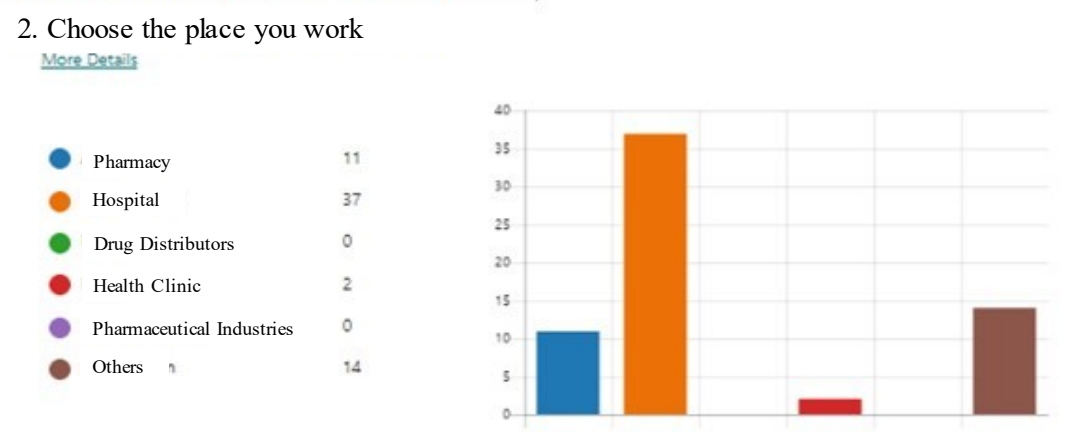
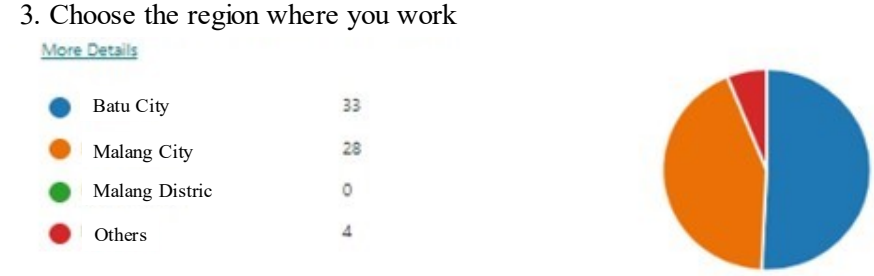
2774-6348 online

The results of the exit survey (Figure 5), which were distributed after the workshop was over, showed that from the four questions asked, the team got an idea that:

1. Participants' understanding increased related to knowledge of DNA, where the score obtained was 4.40 on a scale of 5.00.
2. The adsorption isolation technique could be well understood with training, where the score obtained is 3.60 out of a scale of 5.00.
3. The purification technique could be well understood; the score obtained is 3.70 on a scale of 5.00

One thing that needed improvement was the delivery of DNA concentration and purity measurement, which only got a score of 3.15 out of a 5.00 scale.





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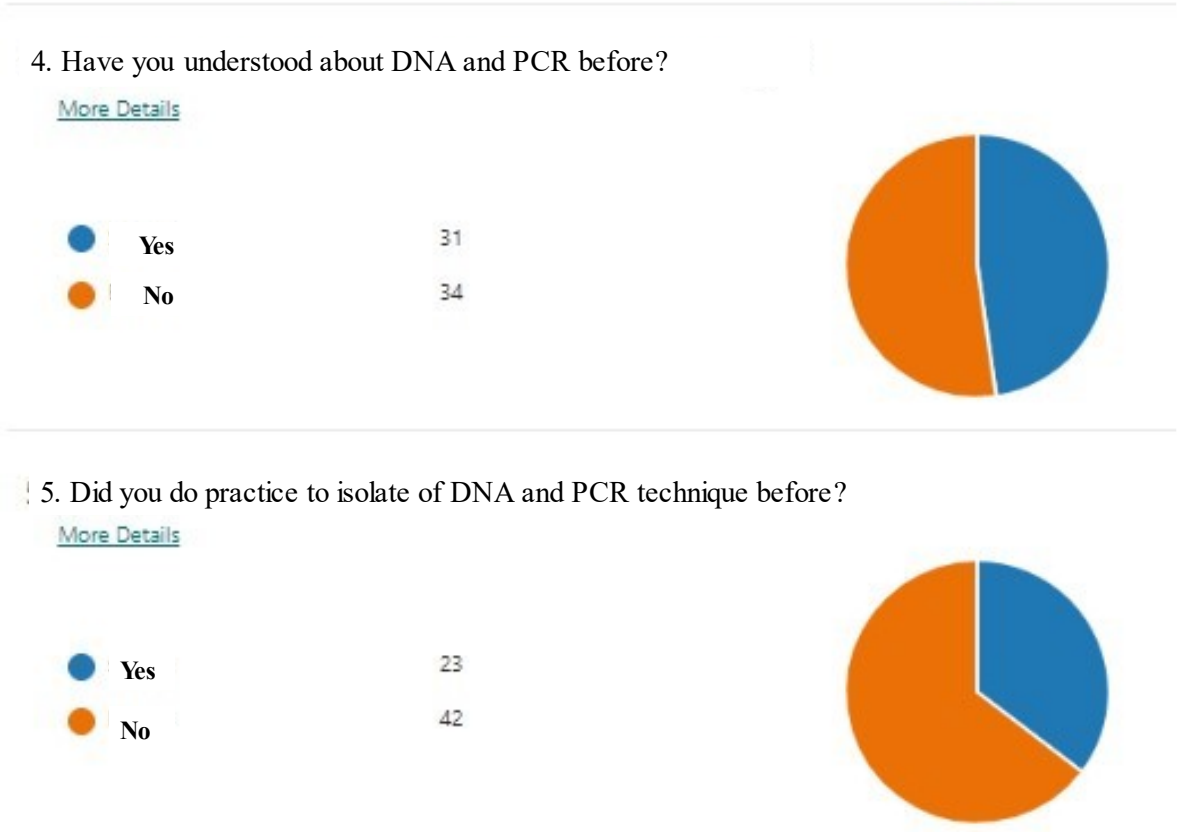

Figure 4. Demographic data of webinar and workshop participants.

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2774-6348 online

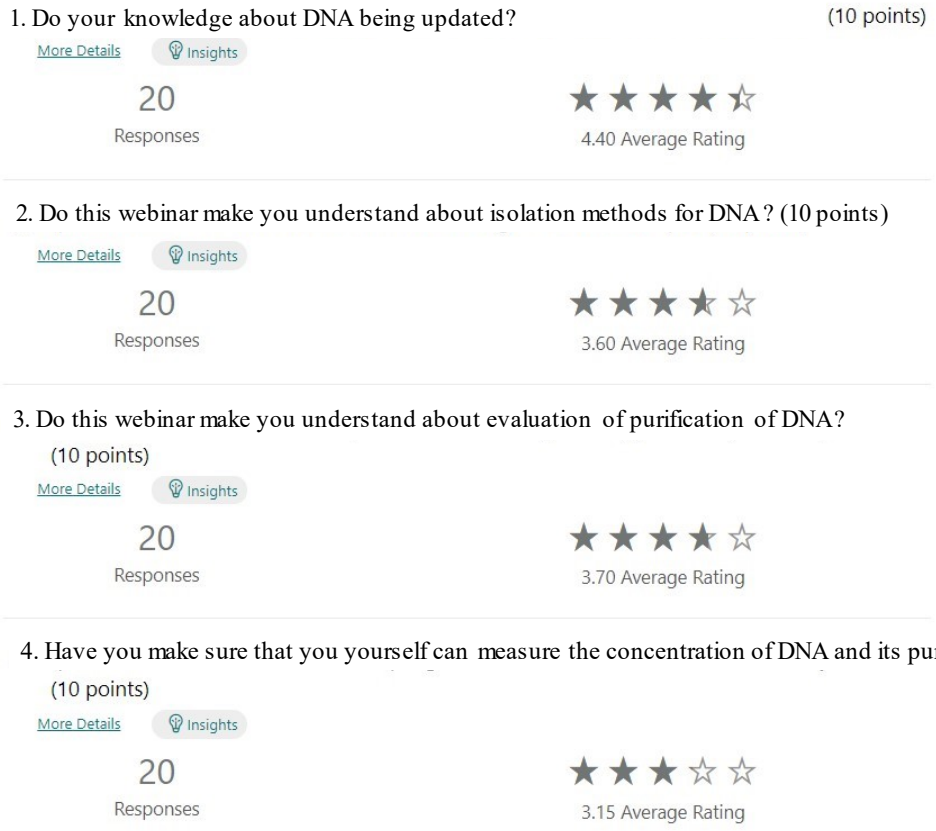

Figure 5. Results of the exit survey for webinars and workshops.

CONCLUSION

The community service program results can be concluded that understanding genetic material, DNA isolation, and its implementation in the clinical field can be well received by showing an increase in the number of participants' scores from pre-test to post-test. Another conclusion was that the workshop could run well and was enthusiastically welcomed by the participants; this was reflected in some comments that wanted similar seminars and workshops to be held in the future.

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2774-6348 online

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.24-36, 2022

Original Title:
Penguatan Kompetensi Teknik Biomolekular Bagi Ahli Farmasi di Kota Batu melalui Webinar dan Workshop Isolasi Materi Genetik, *real-time PCR*, dan Aplikasinya di Bidang Klinis

Abstrak. Pandemi Covid-19 memaksa ahli farmasi berupaya untuk meningkatkan kualifikasi dan kompetensinya terutama di bidang biologi molekuler. Minimnya sumber daya manusia yang memiliki kompetensi di bidang ini mengakibatkan penanganan Covid-19 menemui kendala sehingga menghambat percepatan pemulihan pasca pandemi. Penyebaran virus yang begitu cepat mengharuskan tenaga Kesehatan untuk bergerak secepat mungkin dalam mengatasi kondisi pandemic ini. Pengabaian hal-hal teknis yang penting sering terjadi sehingga mempengaruhi hasil identifikasi yang diharapkan dapat lebih akurat, presisi dan dapat diandalkan. Dalam upaya peningkatan kapasitas kompetensi para ahli farmasi di bidang biomolekuler terutama pada kompetensi teknis isolasi materi genetik dan metode PCR, maka Program Studi S1 Farmasi Universitas Ma Chung menyelenggarakan Webina dan Workhsop terkait dengan isolasi DNA dan uji kualitas mutunya. Webinar dan workshop isolasi materi genetik ini dilaksanankan sebagai bentuk impementasi penelitian Prodi S1 Farmasi Universitas Ma Chung terutama di pengembangan bidang biologi molekuler. Beberapa penelitian memang difokuskan pada pendekatan biologi molekuler. Hal-hal yang menjadi bagian utama dalam webinar dan workshop ini adalah untuk menegakkan beberapa kriteria-kriteria penting sebelum identifikasi virus yang sebenarnya dilaksanakan. Pengabdian ini melakukan kerjasama dengan PAFI (Persatuan Ahli Farmasi Indonesia) Kota Batu sebagai mitra. Peserta yang mengikuti acara ini terdiri dari 63 orang yang berasal dari daerah Kota Batu dan Kota Malang. Hampir sebagian besar peserta berkerja di fasilitas kesehatan dengan 50% dari peserta pernah melakukan isolasi materi genetik dan PCR (*Polymerase Chain Reaction*). Penyebaran tes sebelum dan sesudah webinar dengan pertanyaan yang sama menghasilkan peningkatan nilai rata-rata dari 42,9 menjadi 61,1. Hal ini menandakan pelatihan berkelanjutan dalam bidang ini perlu diadakan secara berkesinambungana, sehingga kompetensi ahli farmasi dalam bidang biologi molekuler semakin baik.

Kata kunci: ahli Farmasi, kompetensi molekuler, isolasi, DNA, PCR

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Medicine Consumption Reminder and Monitoring Application for Patients with Leprosy Disease

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Abstract. Leprosy or also known as Hansen's disease (HD) or Morbius Hansen's disease (MHD) caused by the bacterium *Mycobacterium leprae.* The symptoms of leprosy are hardly identified. In fact, some symptoms only can be identified after 20-30 years. Recently, the advent of multidrug therapy (MDT) and the use of anti-inflammatory therapies have given substantial improvements in long-term health outcomes for patients diagnosed with leprosy. However, the medication was a time consuming. Healthy behavior in the management of leprosy treatment requires discipline in taking leprosy medication. On the contrary, poor treatment management will lead to permantent consequnces of disability and deformity. Various Android-based applications have been developed by programmers. Smartphone technology is expected to help patients taking medication in supervising and reminding. In addition, through the cloud based technology the mobile application is expected to be solution as medium of information and communication for every stake holder in dealing with leprosy patients. This research involves a series of software development processes which are divided into several phases. Starting with the identification of the problem, moving on to the design of the application and the API service, to the development and testing of the application using a variety of test scenarios, and concluding with the documentation process. Both the functionality and the design were tested using the User Experience Questionnaire (UEQ) and black-box testing. Based on the outcomes of black box testing, the app's functionality work without any issues. The UEQ results show that novelty (Good), stimulation (Good), efficiency (Good), reliability (Above Average), perspicuity (Above Average), and beauty (Good) are all positive (Above Average). According to the UEQ results, the application received the highest efficiency level rating of 1.75, which indicates that it is regarded as having good consumption efficiency and being usable.

Keywords: Medication Consumption, Reminder Application, Monitoring Application, Leprosy

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INTRODUCTION

Leprosy or also known as Hansen's disease (HD) or Morbius Hansen's disease (MHD) caused by the bacterium *Mycobacterium leprae*. The bacterium will induce a persistent infection in people that mostly affects the skin and peripheral nerves, but may also impact places like the eyes, mucous membranes, bones, and testicles. It also causes a range of clinical phenotypes (White, C., & Franco-Paredes, C., 2015). Recently, it has been shown that *Mycobacterium leprae* has the ability to spread infection or attracting macrophages to develop granulomas that affect systemic dissemination of *Mycobacterium leprae*. The presence of bacilli in the skin produces the dermatological manifestations of the disease, and nerve infection produces axonal dysfunction and demyelination, leading to sensory loss and its consequences of disability and deformity.

According to East Java's public health sector, there are about 2,668 or about 24% new leprosy patients and 3,351 leprosy patients who are still receiving treatment in East JAVA region only (Liputan6, 2020). Of the 2,668 new leprosy patients, as many as 255 suffer from visible disabilities due to late detection and about 7.3% are children. The symptoms of leprosy are hardly identified (Bahia El Idrissi, N., Iyer, A.M., et al, 2017). In fact, some symptoms only can be identified after 20-30 years. Skin numbness, a thickening of the skin that is light pale in color, a lack of perspiration, sores that appear but do not hurt, an enlargement of nerves that typically occurs at the elbow and knee hinges, weakened muscles, the loss of eyebrows and eyelashes, dry eyes, a runny nose, and congestion of the nasal passages are some symptoms that can appear (Grzybowski, A., Nita, M. et al., 2015). If the leprosy is severe enough, the doctor will need to perform some additional tests to check the spread of the *Mycobacterium leprae* bacteria in patient's organs.

Recently, the advent of multidrug therapy (MDT) and the use of anti-inflammatory therapies have given substantial improvements in long-term health outcomes for patients diagnosed with leprosy (Kar, H.K. & Gupta, R., 2015). However, the medication was a time consuming. This brought high risk for discipline issues in patients medication (Ministry of Health RI, 2014). In research concluded in 2013, involving 48 patients with leprosy, 62.3% patients were not obedient in their medicine consumption. Patient dicipline affects morbidity and mortality (Siregar, T. & Ratnawati, D., 2019). Patient compliance in the treatment process determines the success of treatment. Healthy behavior in the management of leprosy treatment requires discipline in taking leprosy medication. On the

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2774-6348 online

contrary, poor treatment management will lead to permantent consequnces of disability and deformity (Andriani, E., Khotimah, et al., 2019). In addition to the treatment for leprosy patients, the medication will involves a number of antibiotic drugs that also require direct supervision from a doctor or health practitioner. Unfortunately, social stigma still become a major problem among other issues (Arisal, A., Agustang, A. et al., 2020). It often prevents doctor and health practitioner from being able to reach the patient. These two factor will be the main focus in this research.

According to the literature review and field research, the lack of medical professionals makes it challenging to treat leprosy patients who live in distant areas. This makes it even more challenging to keep track of the patient during therapy. This is still made worse by the patient's continued disobedience and by the absence of family and community support in efforts to recover leprosy patients. As a result, it frequently affects how successfully the therapy is being administered.

Along with the rapid development of Information Technology especially in mobile computing technology, smartphones are present in everyday life. Smartphone now can be used to access and process data with robust computing power and able to run applications that help daily life. Android is one of the most smartphone operating system that widely used today (Holla, S. & Katti, M.M., 2012). Various Android-based applications have been developed by programmers. Smartphone technology is expected to help patients taking medication in supervising and reminding. In addition, through the cloud based technology the mobile application is expected to be solution as medium of information and communication for every stake holder in dealing with leprosy patients.

PROBLEMS

There may be many people out there who require ongoing assistance, including our elderly elders, family members, and persons with special needs. In this case, most patients with leprosy are difficult to be traced. They are mostly isolated in remote places that are hard to reach. The difficulty of access to health facilities, as well as the lack of support from families and communities make the medication more difficult to carry out. The patient's lack of medication compliance makes this condition worse, contributing to the low success rate of the current treatment plan. An application prototype that can be used as an alternate solution to enhance the healing of leprosy patients will be developed in this

research. A medication reminder feature will be included in the created application to make sure that patients are always compliant with their treatment. On the other hand, the application's design aims to make it simpler for medical professionals to monitor the treatment of leprosy patients. Decisions on efforts to treat leprosy patients can be based on the data gathered through this application.

METHOD OF IMPLEMENTATION

This research involves a series of software development processes which are divided into several phases. Starting with the identification of the problem, moving on to the design of the application and the API service, to the development and testing of the application using a variety of test scenarios, and concluding with the documentation process. The following are the results of each phase which are presented in detail.

1. The problems identified in this study were the difficulty of leprosy patients to be disciplined during their treatment period and the difficulty of health actors to be able to supervise the treatment being carried out, making the treatment that was carried out less effective and often failed.
2. A number of visual diagrams employing UML diagrams, including Use Case Diagrams, Class Diagaram, Entity Relationship (ER) Diagrams, Application Mockups loaded with Application Workflows, as well as a number of Application Test Scenarios, are used throughout the system design stage.
    - The key elements that need to be included in the created application will be determined using Use Case Diagrams. Diagram visualization will involve a number of actors who will utilize the application.
    - The physical model of the database design application that will be created is based on ER and Class diagrams. Data and information that will be used to initiate application functions are shown using entities and attributes.
    - An application workflow is a plan that outlines how each element of the program can be accessed by the end user to address the current issue. There are at least three aspects of the program that serve as reminders to take medications and a tool for health actors to monitor the behavior of leprosy patients while they are undergoing treatment.

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3. The process of creating a mobile application will be carried out based on the designs created in the prior phase throughout the application development and testing phase. Numerous computer codes will be used during the development phase to create an effective user interface and functional application.
4. The application, which focuses on two different aspects, will be tested when it is developed. To determine whether all functionalities developed are operating at their best, program functionality is tested using a number of black box tests. UI/UX testing will be carried out using the UEQ research tool involving a number of respondents (Schrepp, M., Thomaschewski, J. and Hinderks, A., 2017).
5. Research objectives are evaluated by a series of UI/UX and application functionality tests, and the results are then presented as the project documentation, which is the last step in the development process.

RESULT AND DISCUSSION

This part serves as the reports of the results and discussion. According to the Use Case Diagram in Figure 1, there are three different types of users: administrators, medical professionals, and patients. Access privileges to features vary depending on the user. Patients only have access to the medication reminder tool, while health professionals can choose the medications to be taken on what timetable, as well as keep track of the patient's disciplinary information.

ISSN: 2774-6011 print
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Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.37-49, 2022

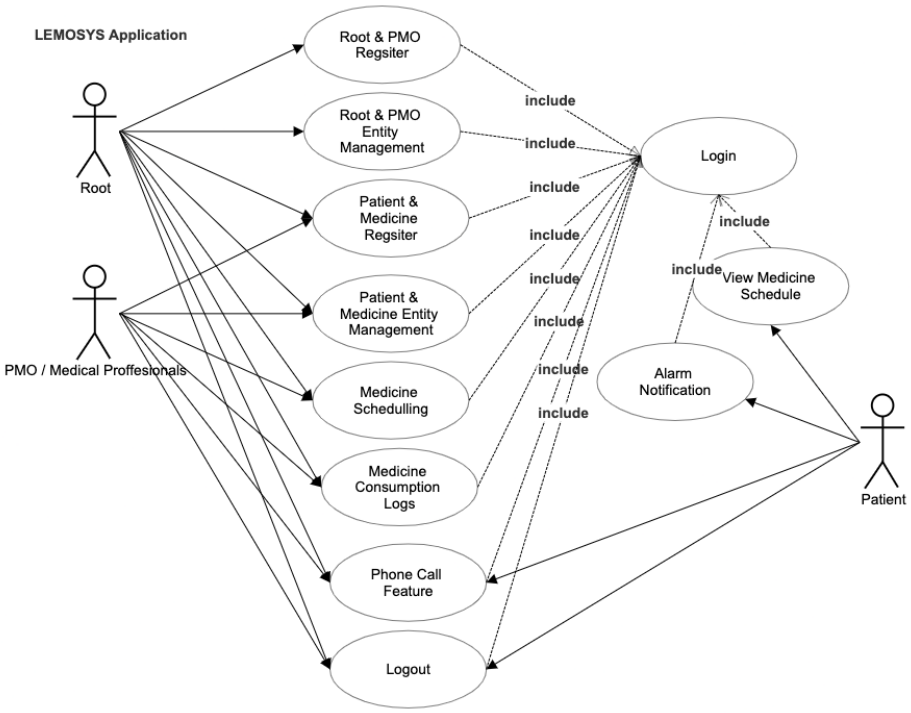

Figure 1. Use Case Diagram of LEMOSYS Aplication.

Figure 2 shows ER Diagram, which is the actual representation of the Class Diagram. The entities and attributes that will be used as part of the application work are described in the ER Diagram. The name, date of birth, gender, and address are used to identify patients and medical professionals. Particularly for patients, there are characteristics such as a leprosy-related medical history, prescription information and dosage regimens, as well as the patient's disciplinary status. Only health actors will have access to these data as part of the monitoring process. The name of the drug, the dosage, and the timing of taking the drug will be noted in a log that will be utilized by medical professionals to assess the extent of the treatment's efficacy.

Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.37-49, 2022
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2774-6348 online

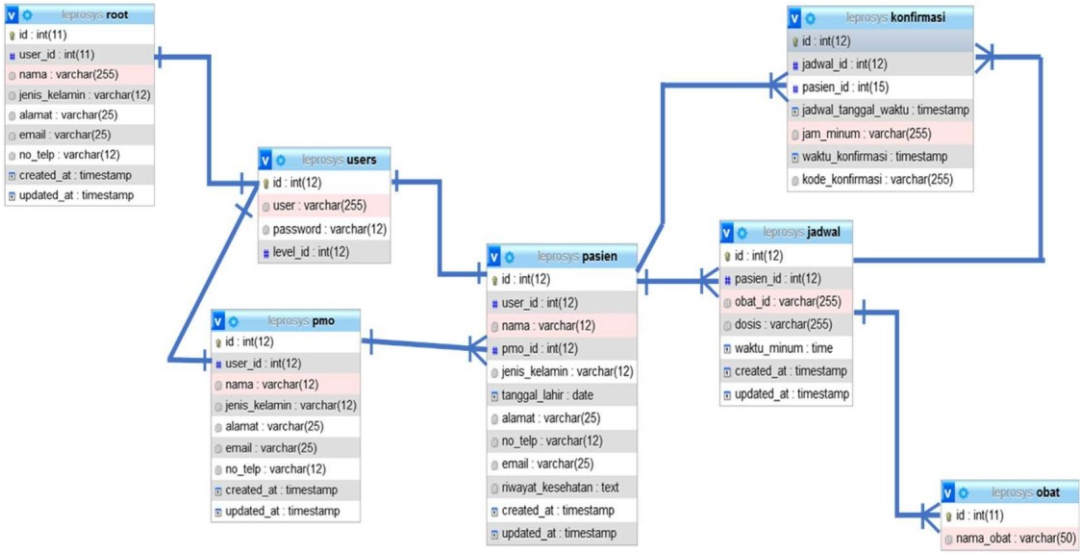

Figure 2. ER Diagram of LEMOSYS Application.

As part of user authentication, the flow of the registration process for patients and medical professionals must be followed as shown in Figure 3 and Figure 4. At the start of the treatment procedure, health actors acting as the authorities will complete the patient registration process. The administrator will especially handle the registration process for medical professionals. To ensure that only authorized users can schedule medicine intake, choose the dosage and kind of medication for leprosy patients, user authentication must be carried out. The patient's level of discipline is evaluated by how well they stick to their prescription routine. It is envisaged that the reminder function and monitoring of drug intake will boost the success rate of the pharmaceutical process.

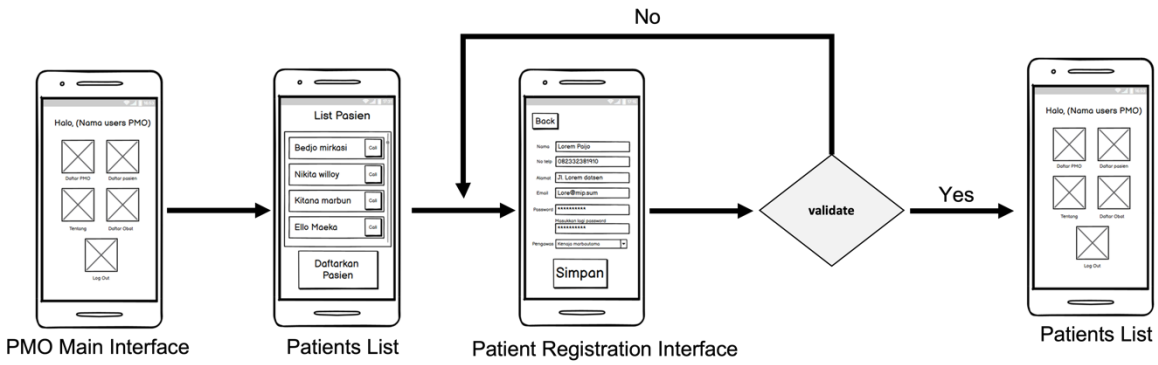

Figure 3. Patient Registration Userflow on The LEMOSYS Application.

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2774-6348 online
Journal of Community Practice and Social Welfare
Vol. 02, No. 01, pp.37-49, 2022

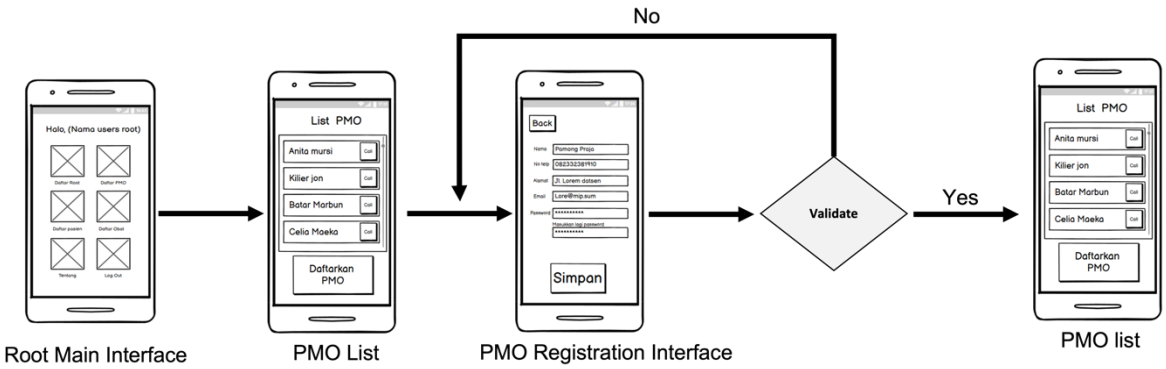

Figure 4. Medical Proffesionals Registration Userflow on The LEMOSYS Application.

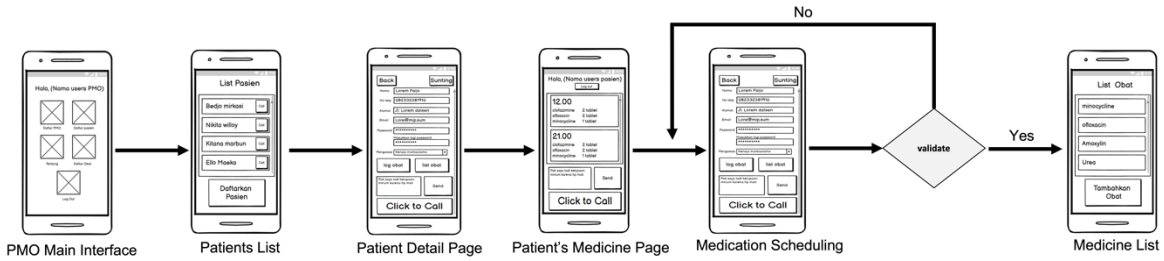

Figure 5. Medication Scheduling Userflow on The LEMOSYS Application.

The authentication process makes sure that each user has the necessary access rights to use the application's functionalities. After completing the authentication process, users can access the application's major features. Four program features, including Root/Administrator, Medical Proffesionals (PMO), Patients (*Pasien*), and Medicines (*Obat*) collectively represent the four key entities. User accounts are created using the PMO and Patient functionalities. The list of medications used for the patient's medication procedure is kept in the Medicines feature. Entity sub features are used for entity (Root, PMO, Patients and Medicine) management, which includes adding, modifying, and deleting entity data. Every step of the data management process, including validation, is documented in the application system log. This seeks to guarantee the data in the system's integrity. A number of crucial details, like who handled the data management and when, will be recorded in the application's system log. Only administrators specifically have access to these logs. Figure 6 shows the main feature of LEMOSYS Application.

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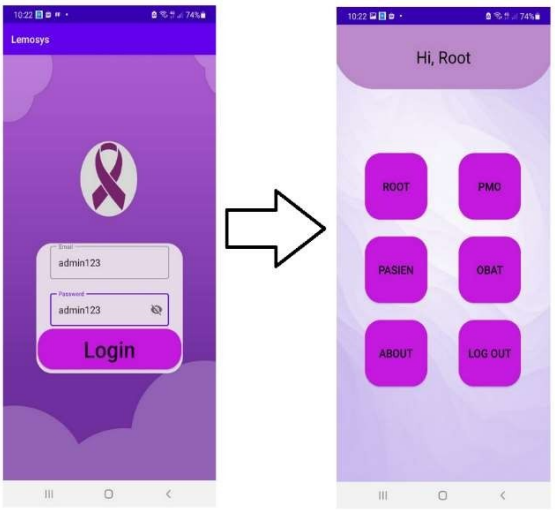

Figure 6. Main Feature of LEMOSYS Application.

Medical professionals are the only ones who can use the medication scheduling feature. By including the drug's take-time in the patient's data, the scheduling process is completed. The internal alarm feature of the smartphone device will be used for this scheduling process. This is done in anticipation of the fact that the internet connection is not required for the medication reminder feature. As part of the monitoring procedure for taking medicine, patient confirmation must be made following the completion of scheduling. The patient's level of discipline will be evaluated by the promptness of the confirmation. Similar findings were made by Yusmaniar (Yusmaniar, Susanto, Y., et al., 2020) in his study on the use of drug taking alarms (AMINO), which showed that they considerably improved patient medication compliance. Figure 7 shows the medication notification feature of LEMOSYS Application.

ISSN: 2774-6011 print
2774-6348 online

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Vol. 02, No. 01, pp.37-49, 2022

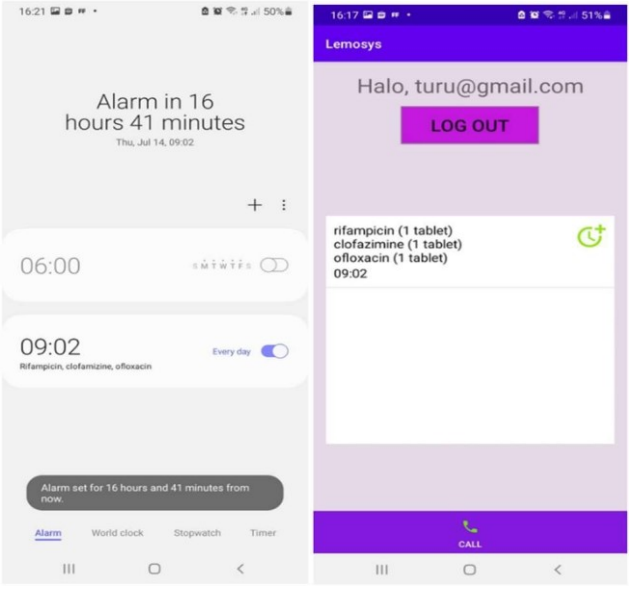

Figure 7. Medication Notification Feature of LEMOSYS Application.

This entity administration feature has undergone extensive and detailed testing. For all the developed application functionality, there are thirteen test cases. The thirteen test scenarios as in Table 1 examine entity management, setting medicine schedules, setting alarms, verifying taking medication features, and taking medication history features, among other things. All of the examined features have demonstrated proper operation in compliance with the requirements and layout of the application system, according to test results.

Table 1. Application Functionality Testing Result

No	Test Scenario Code	Application Features	Result
1	P001	Login	Success
2	P002	Root and Medical Proffesionals Registration	Success
3	P003	Root and Medical Proffesionals Data Management	Success
4	P004	Medicines and Patients Registration	Success
5	P005	Patients and Medicines Data	Success

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No	Test Scenario Code	Application Features	Result
		Management	
6	P006	Patients Medication Schedule	Success
7	P007	Patients Log	Success
8	P008	Medication Schedule	Success
9	P009	Alarm Notification Feature	Success
10	P010	Alarm Feature	Success
11	P011	Patients Confirmation	Success
12	P012	Logout	Success
13	P013	Calling Patients and Medical Proffesionals	Success

To assess the level of applicability of the application interface design, UI/UX component testing is done. UX evaluation is done to make sure the application's design adheres to excellent interface design and user experience standards so that users will not find it challenging to use (Wawolumaja, J. F., 2021). Six assessment components were evaluated by using a questionnaire to collect data. Attractiveness, clarity, efficiency, correctness, stimulation, and innovation are among the assessment's six criteria. The six assessment components are represented by the 26 questions. Testing was done on a selection of respondents chosen at random. The UEQ Data Analysis Tool is used to calculate the test data. The test results show that the component of the overall assessment receives a favorable score. The qualities of attractiveness, perspicuity, efficiency, and stimulation receive high marks. The dependability and novelty components, meanwhile, received ratings that were above average.The test results are displayed in Figure 8.

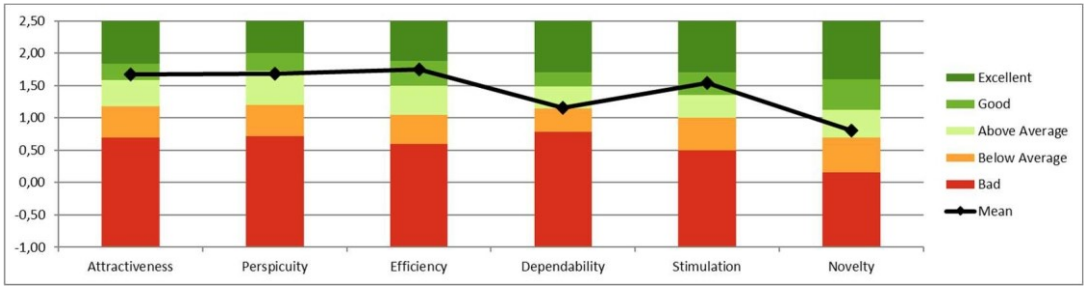

Figure 8. Benchmark Chart of UEQ Test Results.

CONCLUSION

The User Experience Questionnaire (UEQ) and black-box testing were used as the testing techniques for both functionality and design. The outcomes of the black box testing support the smooth operation of the application's functionalities. The UEQ results show that uniqueness, perspicuity, efficiency, dependability, dependability, and attractiveness are all above average (Above Average). The program received the maximum efficiency level rating based on the UEQ results 1.75, which indicates that it is regarded as having good usage efficiency and being usable.

As a result of the investigation that was done, this article was written. The outcomes of this study are anticipated to advance research in related areas and provide as justification for additional advancement. To obtain more concrete outcomes, additional testing and in-depth analysis to assess the effectiveness of this application when implemented are required. Because of the author's limited perspective and domain of competence, the researcher is aware that the work is still far from being directly applied. As a result, recommendations and helpful feedback are highly desired.

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Utilization and Processing of Starfruit into Various Food Products in Watesari Village, Balongbendo District, Sidoarjo Regency

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Abstract. Starfruit is a fruit plant in the form of a tree originating from Malaysia, then spread widely to various other tropical countries including Indonesia. Sweet starfruit has various benefits for the health of the body. The content in star fruit can also be used for the prevention of diseases including getting rid of sore throat, cough, and fever, suppressing diabetic symptoms, also reducing high cholesterol. The processing of star fruit into various food products namely jam, ice cream, jelly candy, and pudding is carried out by the community service team of the Bachelor of Pharmacy Study Program, at Anwar Medika University. This utilization and processing are two of the tangible forms of improving the Watesari Village's economy. The activities include counselling, processing, and distribution of various food products from star fruit. The activities that were carried out received a positive response from the Village Headman and Watesari Village residents. The Watesari Village community was very enthusiastic when distributing various food products made from star fruit.

Keywords: star fruit cultivation, various food products, nutritious food

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INTRODUCTION

Starfruit is a fruit plant in the form of a tree originating from Malaysia, then spread widely to various other tropical countries including Indonesia. In general, starfruit can be planted in the yard of the house and can be used as a shade plant in the yard (Rukmana, 1996). Apart from being a fresh fruit food, star fruit can also be processed into nutritional products, because star fruit contains high levels of vitamin A and vitamin C, with a sugar content of 8% (Rukmana, 2006).

Sweet starfruit has various benefits for the health of the body. The content in star fruit can also be used for the prevention of diseases including getting rid of cough, fever, and sore throat, suppressing diabetic symptoms, also reducing high cholesterol, etc. (Mardiana, 2008). Star fruit has a distinctive taste and aroma, this is due to the eugenol compounds contained in star fruit. The taste of the fruit is determined by its ripeness. Ripe fruit on the tree will have a better taste, yellowish colour with a smooth and shiny skin surface. In contrast to ripe fruit, the colour of the fruit will be pale, and the surface of the fruit skin becomes wrinkled and lowering fruit quality (Sutrisno, 1991).

Watesari Village is one of the villages located in Balongbendo sub-district, Sidoarjo Regency, East Java. This village has potential in agriculture, namely star fruit, to optimize this potential, our community service was carried out by the Bachelor of Pharmacy Study Program at Anwar Medika University. It provides counselling regarding the benefits of star fruit and processing star fruit on various processed food products, that are nutritious and healthy.

PROBLEMS

Based on the results of a survey conducted by the community service team, the problems in Watesari Village, Balongbendo District are:

1. Star fruit was not optimally processed into food products.
2. The lack of public awareness about the benefits of star fruit.

METHOD OF IMPLEMENTATION

This Community Service activity was carried out by a Bachelor of Pharmacy Lecturer at Anwar Medika Hospital with the assistance of 10 Pharmacy Undergraduate Students. The target of this service is the Watesari Village Community, Balongbendo District, Sidoarjo Regency. This Community Service was carried out for a month in July –

August 2018. The implementation of the activity was carried out in several stages. The steps taken include:

a. The first week conducted observations and data collection about the condition of Watesari Village.
b. The second week prepared for service activities including making brochures and posters related to star fruit, making materials about the benefits and ways-of-processing star fruit into food products, and buying materials that are needed for star fruit processing.
c. The third week provides counselling to the people of Watesari Village about the benefits of star fruit and provides independent training to the community on how to process star fruit into various food products.

RESULTS AND DISCUSSION

The theme in this community service is the Utilization and Processing of Starfruit into Various Food Products, where the food products of choice are making ice cream, jam, pudding, and jelly candy. The products made are named Bling-Bling ice cream, Bling-Bling jam, Bling-Bling pudding, and Bling-Bling jelly candy. The product name 'Bling-Bling' was chosen as the product name because of Indonesian phonetical similarity with the used main ingredient, which is star fruit. Besides that, star fruit is the forerunner of the flagship product of Watesari Village, Balongbendo District - Sidoarjo. Figure 1 shows outreach activities on the use of star fruit

Figure 1. Counselling on the benefits of star fruit and processing of star fruit into various food products

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This work program is carried out by providing counselling and direct practice (demo) to residents of RW 03 Watesari Village who have been given invitations to each RT. This program aims to provide information about star fruit and its processing and aims to improve the economic conditions of the residents of Watesari. This program also aims to increase the selling value of star fruit which is a superior product of Watesari village. Figure 2 shows processing activities carried out with residents.

Figure 2. The star fruit processing into various food products

The first food product is star fruit ice cream. The ingredients used for making star fruit ice cream are quite easy, including star fruit, sugar, fresh milk, and vanilla. The first step is to choose a ripe star fruit because if it was ripe, it supposedly gives a sweet taste and soft texture too. Wash the selected star fruit, then slice the star fruit and separate it from the seeds. Puree the slices of star fruit with a blender, that were cleaned and have been separated from the seeds beforehand, and finally strain until fully extracted and the waste remains. Take only the extraction of star fruit and add it with other ingredients such as sugar, milk, and vanilla then stir until homogeneously mixed (you can just blend for 5 minutes), then place the dough into the freezer. Processed ice cream that has been frozen is ready to be served.

The second food product is star fruit jam. The ingredients used for making star fruit jam are also quite easy, including star fruit, fresh oranges, and sugar. The proportion for star fruit and oranges is 2:1 (if using 2-star-fruits, then only one orange is used). Wash the selected star fruit (choose a good and ripe one). Next, clean the edges of the star fruit skin, then slice the star fruit and separate it from the seeds, and puree using a blender. Squeeze

the orange and strain its water, put the blended star fruit and the orange juice in a saucepan, then add the sugar. Cook over medium heat, stirring gently until a thick mass forms. Let it cool and put it in a container. Figure 3 shows starfruits products namely star fruit ice cream, star fruit jam, and star fruit pudding.

Figure 3. The product of star fruit ice cream, star fruit jam, and star fruit pudding

The third food product is star fruit pudding as shown in Figure 3. The ingredients used include star fruit, water, plain jelly powder, and granulated sugar. Prepare a star-fruit, then cut it into small cubes. Prepare another star fruit, cut it into small pieces, then puree with a blender and take the juice. Put the star fruit juice, plain jelly powder, water, and granulated sugar into a saucepan. Cook over medium heat until the mixture boils. Place the small, cubed cut star fruit, in a container and then pour the boiling mixture into it. Wait until it cools and solidifies. Once it cools, then ready to be served.

The last food product we made was star fruit jelly candy. The ingredients were star fruit, agar-agar, water, and sugar. Wash the star fruit and then slice the star fruit and separate it from the seeds. Puree with a blender, squeeze it and take only the juice. Put star fruit juice, agar-agar, sugar, and water into a saucepan. Cook over medium heat, stirring gently until it boils. Pour into a bowl and wait until the dough hardens. If the dough has hardened, cut the dough into cubes or according to self-creation, then dry the diced pieces for 3-4 days until they produce a hard and chewy candy texture. Figure 4 shows a starfruit jelly product.

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Figure 4. Process of Creating Organic Fertilizer

The response of the residents of Watesari Village to the outreach activities and demonstrations of making star fruit food products that have been carried out is quite good. They gave a lot of feedback after being given counselling and making demonstrations as well as testers for the processing results that had been provided, including ice cream, jam, and pudding. Many ladies (housewives) who mostly attended are interested in making these healthy food products after being given a tester. Even after the event, we were invited to participate in the Watesari Village PKK organization (PKK abbreviated from the Indonesian version organization of Family Welfare Empowerment) activities which were held at the village hall. We were asked to explain again about the program "Utilization and Processing of Starfruit into Various Food Products" to PKK ladies in Watesari village and provide testers of products that have been made. PKK ladies who attended were generally very enthusiastic, listening to every step of making the product described. The tester results show that many PKK ladies prefer the products that have been served.

CONCLUSION

This community service activity aims to provide awareness to the community regarding the benefits of star fruit and processing star fruit into various processed food products, namely jam, ice cream, jelly candy, and pudding. It is hoped that the community can make various food products from the star fruit independently. This activity has been carried out well and the community enthusiastically welcomed when given education about the benefits of star fruit for health, how to process star fruit into nutritious food products in a simple way, and distribution of testers for various food products from star fruit for free.

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Original Title:
Pemanfaatan dan Pengolahan Buah Belimbing Menjadi Aneka Produk Pangan di Desa Watesari, Kecamatan Balongbendo, Kabupaten Sidoarjo

Abstrak. Belimbing merupakan tanaman buah yang berupa pohon berasal dari negara Malaysia, kemudian menyebar luas ke berbagai negara yang beriklim tropis lainnya termasuk di wilayah Indonesia. Belimbing manis memiliki manfaat yang beraneka ragam baik bagi kesehatan tubuh. Kandungan dalam buah belimbing juga dapat digunakan untuk pencegahan terhadap penyakit diantaranya mengatasi batuk, mengatasi demam, kencing manis, mengurangi kolesterol yang tinggi, mengatasi sakit tenggorokan. Salah satu bentuk kegiatan yang dilakukan oleh Program Studi S1 Farmasi Universitas Anwar Medika adalah pengolahan buah belimbing menjadi aneka produk pangan, yaitu selai, es krim, permen jelly, dan puding. Pemanfaatan dan pengolahanini merupakan salah satu bentuk nyata dalam meningkatkan perekonomian di Desa Watesari. Pengolahan buah belimbing menjadi aneka produk pangan dilakukan oleh tim pengabdian masyarakat Program Studi S1 Farmasi Universitas Anwar Medika. Kegiatan yang dilakukan meliputi penyuluhan, pengolahan dan pembagian aneka produk panagan dari buah belimbing. Kegiatan yang dilakukan mendapatkan respon postif dari Kepala Desa dan Warga Desa Watesari dan masyarakat Desa Watesari sangat antusias saat pembagian aneka produk pangan berbahan dasar buah belimbing.

Kata kunci: Pengolahan buah belimbing, aneka produk pangan, makanan bergizi

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